JPL Bibliography 39-31

Publications of the Jet Propulsion Laboratory 1989

December 15, 1990

National Aeronautics and
Space Administration

Jet Propulsion Laboratory
California Institute of Technology
Pasadena, California

This publication was prepared by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

Foreword

JPL Bibliography 39-31 describes and indexes by primary author the externally distributed technical reporting, released during calendar year 1989, that resulted from scientific and engineering work performed, or managed, by the Jet Propulsion Laboratory. Three classes of publications are included:

(1) JPL Publications (87-, 88-, 89-series, etc.), in which the information is complete for a specific accomplishment. Publications can be tailored to wide or limited audiences and be presented in an established standard format or special format to meet unique requirements.

(2) Articles from the quarterly *Telecommunications and Data Acquisition (TDA) Progress Report* (42-series). Each collection of articles in this class of publication presents a periodic survey of current accomplishments by the Deep Space Network as well as other developments in Earth-based radio technology.

(3) Articles published in the open literature.

Effective January 1977, the "JPL Publication" replaced the Technical Report, Technical Memorandum, and Special Publication. However, the discontinued classes may still appear in future issues of the Bibliography if succeeding volumes or revisions are published in their former series.

JPL personnel can obtain loan copies of cited documents from the JPL Library. Personnel of outside organizations can obtain copies or information regarding the availability of cited documents by addressing a written request to the Documentation and Materiel Division, Jet Propulsion Laboratory, 4800 Oak Grove Drive, Pasadena, California 91109 or the National Technical Information Service, 5285 Port Royal Road, Springfield, Virginia 22161.

Contents

PRECEDING PAGE BLANK NOT FILMED

JPL Publications

Anspaugh, B. E.,
Solar Cell Radiation Handbook, Addendum 1: 1982–1988,
JPL Publication 82-69, Addendum 1, February 15, 1989.

Anspaugh, B. E., and R. S. Weiss,
Results of the 1989 NASA/JPL Balloon Flight Solar Cell Calibration Program,
JPL Publication 89-47, November 15, 1989.

Buehler, M. G., R. A. Allen, B. R. Blaes, K. A. Hicks, G. A. Jennings, Y.-S. Lin, C. A. Piña, H. R. Sayah, and N. Zamani,
Product Assurance Technology for Procuring Reliable, Radiation-Hard, Custom LSI/VLSI Electronics. Report for Period: October 1984–September 1986,
JPL Publication 89-1, January 1989.
(Prepared for Defense Advanced Research Projects Agency, U.S. Department of Defense, and NASA.)

Bush, M. W.,
The Software Product Assurance Metrics Study: JPL's Software Systems Quality and Productivity,
JPL Publication 89-6, February 15, 1989.

Collins, C., J. George, and E. Zamani,
Strategies for Automatic Planning: A Collection of Ideas,
JPL Publication 89-12, May 1, 1989.

Cruz, J. W., and W. C. Eggemeyer,
A Planning and Scheduling Lexicon,
JPL Publication 89-25, September 15, 1989.

Divsalar, D., M. K. Simon, and M. Shahshahani,
Multiple Symbol Differential Detection of Uncoded and Trellis Coded MPSK,
JPL Publication 89-38, November 15, 1989.

Ford, J. P., R. G. Blom, J. A. Crisp, C. Elachi, T. G. Farr, R. S. Saunders, E. E. Theilig, S. D. Wall, and S. B. Yewell,
Spaceborne Radar Observations—A Guide for Magellan Radar-Image Analysis,
JPL Publication 89-41, December 15, 1989.

Hannaford, B., L. Wood, B. Guggisberg, D. McAffee, and H. Zak,
Performance Evaluation of a Six-Axis Generalized Force-Reflecting Teleoperator,
JPL Publication 89-18, June 15, 1989.

Jet Propulsion Laboratory,
The Browse File of NASA/JPL Quick-Look Radar Images From the Loch Linnhe 1989 Experiment,
Brown, Jr., W. E. (Editor),
JPL Publication 89-44, November 15, 1989.
(Prepared for Defense Advanced Research Projects Agency and for NASA.)

Jet Propulsion Laboratory,
Creating a VAPEPS Database—A VAPEPS Tutorial,
JPL Publication 89-15, January 15, 1989.
(Prepared for U.S. Department of the Air Force Space Division and for NASA.)

Jet Propulsion Laboratory,
ECUT (Energy Conversion and Utilization Technologies Program): Biocatalysis Project Annual Report FY 1988,
JPL Publication 89-5, March 1989.
(Prepared for U.S. Department of Energy.)

Jet Propulsion Laboratory,
Environmental Projects: Volume 8 (Modifications of Wastewater Evaporation Ponds),
JPL Publication 87-4, Vol. 8, October 15, 1989.

Jet Propulsion Laboratory,
Environmental Projects: Volume 9 (Construction of Hazardous Materials Storage Facilities),
JPL Publication 87-4, Vol. 9, November 15, 1989.

Jet Propulsion Laboratory,
Proceedings of the Mobile Satellite System Architectures and Multiple Access Techniques Workshop, March 7 and 8, 1989,
Dessouky, K. (Workshop Technical Program Chairman),
JPL Publication 89-13, March 1989.

Jet Propulsion Laboratory,
Proceedings of the Second Noncontact Temperature Measurement Workshop, January 17–19, 1989, Pasadena, CA,
Hale, R. R. (Editor),
JPL Publication 89-16, June 1, 1989.

Jet Propulsion Laboratory,
Proceedings of the 3rd Annual Conference on Aerospace Computational Control, Volume 1,
Bernard, D. E., and G. K. Man (Editors),
JPL Publication 89-45, Vol. 1, December 15, 1989.

Jet Propulsion Laboratory,
Proceedings of the 3rd Annual Conference on Aerospace Computational Control, Volume 2,
Bernard, D. E., and G. K. Man (Editors),
JPL Publication 89-45, Vol. 2, December 15, 1989.

Jet Propulsion Laboratory,
Proceedings of the Thirteenth NASA Propagation Experimenters Meeting (NAPEX XIII). Held at the Red Lion Inn, San Jose, California, June 29–30, 1989,
Davarian, F. (Editor),
JPL Publication 89-26, August 15, 1989.

Jet Propulsion Laboratory,
Science Plan for the Alaska SAR Facility Program. Phase 1: Data From the First European Remote Sensing Satellite, ERS-1,
JPL Publication 89-14, September 1, 1989.

Jet Propulsion Laboratory,
The Voyager Neptune Travel Guide,
Kohlhase, C. (Editor),
JPL Publication 89-24, June 1, 1989.

Jin, M. Y.,
A Doppler Centroid Estimation Algorithm for SAR Systems Optimized for the Quasi-Homogeneous Source,
JPL Publication 89-9, October 1, 1989.

Kumar, R.,
A Novel Multistage Estimation of the Signal Parameters of a Possibly Data-Modulated Sinusoid Under Very High Dynamics,
JPL Publication 89-11, May 1, 1989.
(Prepared for U.S. Air Force Systems Command Armament Division.)

Lawson, D. L., and M. L. James,
SHARP: A Multi-Mission Artificial Intelligence System for Spacecraft Telemetry Monitoring and Diagnosis,
JPL Publication 89-23, May 1, 1989.

Liu, W. T., C. Gautier (Scripps Institute of Oceanography), R. Frouin (Scripps Institute of Oceanography), and R. Tagett,
Monthly Surface Thermal Forcing in the Tropical Pacific from 1980 to 1983,
JPL Publication 89-42, November 15, 1989.

Manhart, P. K., and J. M. Rodgers (Optical Research Associates, Pasadena, California),
Segmented Mirror Manufacturing and Alignment Tolerances (SMMAT),
JPL Publication 89-3, March 1, 1989.

Nash, D. B., J. Plescia, M. Cintala (NASA Johnson Space Center), J. Levine (NASA Langley Research Center), P. Lowman (NASA Goddard Space Flight Center), R. Mancinelli (NASA Ames Research Center), W. Mendell (NASA Johnson Space Center), C. Stoker (NASA Ames Research Center), S. Suess (NASA Marshall Space Flight Center),
Science Exploration Opportunities for Manned Missions to the Moon, Mars, Phobos, and an Asteroid,
JPL Publication 89-29, June 30, 1989.
(Prepared for Office of Exploration, National Aeronautics and Space Administration, Washington, D.C.)

Nguyen, T. M.,
MT's Algorithm: A New Algorithm to Search for the Optimum Set of Modulation Indices for Simultaneous Range, Command, and Telemetry Operations,
JPL Publication 89-20, August 1, 1989.

Nguyen, T. M.,
Phase-Ambiguity Resolution for QPSK Modulation Systems. Part I: A Review,
JPL Publication 89-4, Part I, May 15, 1989.

Nguyen, T. M.,
Phase-Ambiguity Resolution for QPSK Modulation Systems. Part II: A Method to Resolve the Phase-Ambiguity for Offset QPSK Modulation Systems,
JPL Publication 89-4, Part II, May 15, 1989.

Ross, Jr., R. G.,
Magellan / Galileo Solder Joint Failure Analysis and Recommendations,
JPL Publication 89-35, September 15, 1989.

Soli, G. A., and D. K. Nichols,
Use of a Krypton Isotope for Rapid Ion Changeover at the Lawrence Berkeley Laboratory 88-Inch Cyclotron,
JPL Publication 89-28, September 1, 1989.

Thomas, J. B.,
An Analysis of Digital Phase-Locked Loops,
JPL Publication 89-2, February 1989.

Yam, Y., D. S. Bayard, F. Y. Hadaegh, E. Mettler, M. H. Milman, and R. E. Scheid,
Autonomous Frequency Domain Identification: Theory and Experiment,
JPL Publication 89-8, April 15, 1989.

Progress Reports

Alvarez, L. S., and J. Nickerson,
"Application of Optimal Control Theory to the Design of the NASA/JPL 70-Meter Antenna Axis Servos,"
The Telecommunications and Data Acquisition Progress Report 42-97: January–March 1989,
pp. 112–126, May 15, 1989.

Bathker, D. A., and S. D. Slobin,
"DSN 70-Meter Antenna Microwave Optics Design and Performance Improvements Part I: Design Optimization,"
The Telecommunications and Data Acquisition Progress Report 42-97: January–March 1989,
pp. 306–313, May 15, 1989.

Bathker, D. A., and S. D. Slobin,
"DSN 70-Meter Antenna Microwave Optics Design and Performance Improvements Part II: Comparison With Measurements,"
The Telecommunications and Data Acquisition Progress Report 42-98: April–June 1989,
pp. 174–189, August 15, 1989.

Britcliffe, M.,
"A Closed-Cycle Refrigerator for Cooling Maser Amplifiers Below 4 Kelvin,"
The Telecommunications and Data Acquisition Progress Report 42-98: April–June 1989,
pp. 141–149, August 15, 1989.

Cha, A. G.,
"A New Analysis of Beam-Waveguide Antennas Considering the Presence of the Enclosure,"
The Telecommunications and Data Acquisition Progress Report 42-97: January–March 1989,
pp. 162–168, May 15, 1989.

Chen, C.-C.,
"Effective Amplifier Noise for an Optical Receiver Based on Linear Mode Avalanche Photodiodes,"
The Telecommunications and Data Acquisition Progress Report 42-97: January–March 1989,
pp. 216–220, May 15, 1989.

Chen, J.,
"Microwave Time Delays for the X/S-Band Feed System at X-Band,"
The Telecommunications and Data Acquisition Progress Report 42-97: January–March 1989,
pp. 248–251, May 15, 1989.

Cheng, U.,
"Software Package for Performing Experiments About the Convolutionally Encoded Voyager 1 Link,"
The Telecommunications and Data Acquisition Progress Report 42-97: January–March 1989,
pp. 175–179, May 15, 1989.

Cheng, U., and S. Hinedi,
"Performance of the All-Digital Data-Transition Tracking Loop in the Advanced Receiver,"
The Telecommunications and Data Acquisition Progress Report 42-99: July–September 1989,
pp. 60–71, November 15, 1989.

Cheung, K.-M.,
"An Adaptive Vector Quantization Scheme,"
The Telecommunications and Data Acquisition Progress Report 42-100: October–December 1989,
pp. 214–220, February 15, 1990.

Cheung, K.-M.,
"On the Decoder Error Probability of Linear Codes,"
The Telecommunications and Data Acquisition Progress Report 42-98: April–June 1989,
pp. 104–109, August 15, 1989.

Cheung, K.-M.,
"The Weight Distribution and Randomness of Linear Codes,"
The Telecommunications and Data Acquisition Progress Report 42-97: January–March 1989,
pp. 208–215, May 15, 1989.

Cheung, K.-M., and L. Swanson,
"A Performance Comparison Between Block Interleaved and Helically Interleaved Concatenated Coding Systems,"
The Telecommunications and Data Acquisition Progress Report 42-98: April–June 1989,
pp. 95–103, August 15, 1989.

Christensen, C. S., S. W. Thurman, J. M. Davidson, M. H. Finger, and W. M. Folkner,
"High-Precision Radiometric Tracking for Planetary Approach and Encounter in the Inner Solar System,"
The Telecommunications and Data Acquisition Progress Report 42-97: January–March 1989,
pp. 21–46, May 15, 1989.

PRECEDING PAGE BLANK NOT FILMED

Clements, P. A., B. P. Gibbs (Computational Engineering, Inc., Laurel, Maryland), and J. S. Vandergraft (Computational Engineering, Inc., Laurel, Maryland),
"Stable Kalman Filters for Processing Clock Measurement Data,"
The Telecommunications and Data Acquisition Progress Report 42-98: April–June 1989,
pp. 190–201, August 15, 1989.

Collins, O. (Johns Hopkins University, Maryland), S. Dolinar, R. McEliece, and F. Pollara,
"A VLSI Decomposition of the deBruijn Graph,"
The Telecommunications and Data Acquisition Progress Report 42-100: October–December 1989,
pp. 180–190, February 15, 1990.

Collins, O. (Johns Hopkins University, Maryland), and F. Pollara,
"Memory Management in Traceback Viterbi Decoders,"
The Telecommunications and Data Acquisition Progress Report 42-99: July–September 1989,
pp. 98–104, November 15, 1989.

Conroy, B., and D. Le,
"Multipurpose Exciter With Low Phase Noise,"
The Telecommunications and Data Acquisition Progress Report 42-97: January–March 1989,
pp. 169–174, May 15, 1989.

Cormier, R.,
"Voltage Source AC-to-DC Converters for High-Power Transmitters,"
The Telecommunications and Data Acquisition Progress Report 42-100: October–December 1989,
pp. 55–68, February 15, 1990.

Cowles, K.,
"Site Selection Criteria for the Optical Atmospheric Visibility Monitoring Telescopes,"
The Telecommunications and Data Acquisition Progress Report 42-97: January–March 1989,
pp. 235–239, May 15, 1989.

Cowles, K.,
"A Visibility Characterization Program for Optical Communications Through the Atmosphere,"
The Telecommunications and Data Acquisition Progress Report 42-97: January–March 1989,
pp. 221–225, May 15, 1989.

Cucchissi, J. J.,
"Performance Effects of Tie-Truss Modifications for a 70-Meter Centerline Beam Waveguide Antenna,"
The Telecommunications and Data Acquisition Progress Report 42-98: April–June 1989,
pp. 86–94, August 15, 1989.

Dick, G. J., and J. Saunders,
"Microwave Oscillator With Reduced Phase Noise by Negative Feedback Incorporating Microwave Signals With Suppressed Carrier,"
The Telecommunications and Data Acquisition Progress Report 42-99: July–September 1989,
pp. 20–33, November 15, 1989.

Divsalar, D., and M. K. Simon,
"The Use of Interleaving for Reducing Radio Loss in Trellis-Coded Modulation Systems,"
The Telecommunications and Data Acquisition Progress Report 42-97: January–March 1989,
pp. 180–193, May 15, 1989.

Dolinar, S.,
"Exact Closed-Form Expressions for the Performance of the Split-Symbol Moments Estimator of Signal-to-Noise Ratio,"
The Telecommunications and Data Acquisition Progress Report 42-100: October–December 1989,
pp. 174–179, February 15, 1990.

Dolinar, S., and S. Arnold,
"Validity of the Two-Level Model for Viterbi Decoder Gap-Cycle Performance,"
The Telecommunications and Data Acquisition Progress Report 42-100: October–December 1989,
pp. 191–202, February 15, 1990.

Dolinar, S., and K.-M. Cheung,
"Frame Synchronization Methods Based on Channel Symbol Measurements,"
The Telecommunications and Data Acquisition Progress Report 42-98: April–June 1989,
pp. 121–137, August 15, 1989.

Edwards, C. D.,
"The Effect of Spatial and Temporal Wet-Troposphere Fluctuations on Connected Element Interferometry,"
The Telecommunications and Data Acquisition Progress Report 42-97: January–March 1989,
pp. 47–57, May 15, 1989.

Erickson, D., and K. Cowles,
"Options for Daytime Monitoring of Atmospheric Visibility in Optical Communications,"
The Telecommunications and Data Acquisition Progress Report 42-97: January–March 1989,
pp. 226–234, May 15, 1989.

Estefan, J. A.,
"The Determination of Maximum Deep Space Station Slew Rates for a High Earth Orbiter,"
The Telecommunications and Data Acquisition Progress Report 42-100: October–December 1989,
pp. 13–20, February 15, 1990.

Folkner, W. M., and M. H. Finger,
"Photon Statistical Limitations for Daytime Optical Tracking,"
The Telecommunications and Data Acquisition Progress Report 42-99: July–September 1989,
pp. 90–97, November 15, 1989.

Freedman, A. P.,
"Determination of Earth Orientation Using the Global Positioning System,"
The Telecommunications and Data Acquisition Progress Report 42-99: July–September 1989,
pp. 1–11, November 15, 1989.

Galindo-Israel, V., W. Imbriale, K. Shogen (University of Illinois at Urbana-Champaign), and R. Mittra (University of Illinois at Urbana-Champaign),
"Dual-Shaped Offset Reflector Antenna Designs From Solutions of the Geometrical Optics First-Order Partial Differential Equations,"
The Telecommunications and Data Acquisition Progress Report 42-100: October–December 1989,
pp. 69–80, February 15, 1990.

Gatti, M. S., M. J. Klein, and T. B. H. Kuiper,
"32-GHz Performance of the DSS-14 70-Meter Antenna: 1989 Configuration,"
The Telecommunications and Data Acquisition Progress Report 42-99: July–September 1989,
pp. 206–219, November 15, 1989.

Greenhall, C. A.,
"Orthogonal Sets of Data Windows Constructed From Trigonometric Polynomials,"
The Telecommunications and Data Acquisition Progress Report 42-97: January–March 1989,
pp. 300–305, May 15, 1989.

Ham, N. C., T. A. Rebold, and J. F. Weese,
"DSN Radio Science System Design and Testing for Voyager–Neptune Encounter,"
The Telecommunications and Data Acquisition Progress Report 42-97: January–March 1989,
pp. 252–284, May 15, 1989.

Hill, R. E.,
"Disturbance Torque Rejection Properties of the NASA/JPL 70-Meter Antenna Axis Servos,"
The Telecommunications and Data Acquisition Progress Report 42-99: July–September 1989,
pp. 170–188, November 15, 1989.

Hill, R. E.,
"A New Method for Analysis of Limit Cycle Behavior of the NASA/JPL 70-Meter Antenna Axis Servos,"
The Telecommunications and Data Acquisition Progress Report 42-97: January–March 1989,
pp. 98–111, May 15, 1989.

Hinedi, S.,
"A Functional Description of the Advanced Receiver,"
The Telecommunications and Data Acquisition Progress Report 42-100: October–December 1989,
pp. 131–149, February 15, 1990.

Hinedi, S., R. Bevan, H. Del Castillo, P. Kinman, D. Chong, and R. Labelle,
"Digital Doppler Extraction Demonstration With the Advanced Receiver,"
The Telecommunications and Data Acquisition Progress Report 42-100: October–December 1989,
pp. 160–173, February 15, 1990.

Hinedi, S., and B. Shah,
"QPSK Carrier-Acquisition Performance in the Advanced Receiver II,"
The Telecommunications and Data Acquisition Progress Report 42-100: October–December 1989,
pp. 150–159, February 15, 1990.

Hoppe, D. J.,
"A Multiflare Horn With 1-Megawatt Power Handling Capability,"
The Telecommunications and Data Acquisition Progress Report 42-97: January–March 1989,
pp. 149–155, May 15, 1989.

Howard, S. D.,
"Improving a Data-Acquisition Software System With Abstract Data Type Components,"
The Telecommunications and Data Acquisition Progress Report 42-100: October–December 1989,
pp. 248–251, February 15, 1990.

Janik, G. R., J. D. Prestage, and L. Maleki,
"Simple Analytic Potentials for Linear Ion Traps,"
The Telecommunications and Data Acquisition Progress Report 42-99: July–September 1989,
pp. 12–19, November 15, 1989.

Johnson, D. L., S. M. Petty, J. J. Kovatch, and G. W. Glass,
"Ultralow Noise Performance of an 8.4-GHz Maser-Feedhorn System,"
The Telecommunications and Data Acquisition Progress Report 42-100: October–December 1989,
pp. 100–110, February 15, 1990.

Klein, M. J., S. Gulkis, E. T. Olsen, and N. A. Renzetti,
"The NASA SETI Sky Survey: Recent Developments,"
The Telecommunications and Data Acquisition Progress Report 42-98: April–June 1989,
pp. 218–226, August 15, 1989.

Koerner, M. A.,
"Accuracy of Telemetry Signal Power Loss in a Filter as an Estimate for Telemetry Degradation,"
The Telecommunications and Data Acquisition Progress Report 42-97: January–March 1989,
pp. 285–291, May 15, 1989.

Kumar, R.,
"Application of Adaptive Least-Squares Algorithm to Multi-Element Array Signal Reconstruction,"
The Telecommunications and Data Acquisition Progress Report 42-99: July–September 1989,
pp. 141–160, November 15, 1989.

Levy, R.,
"Reanalysis, Compatibility, and Correlation in Analysis of Modified Antenna Structures,"
The Telecommunications and Data Acquisition Progress Report 42-97: January–March 1989,
pp. 367–381, May 15, 1989.

Lichten, S. M.,
"Estimation and Filtering Techniques for High-Accuracy GPS Applications,"
The Telecommunications and Data Acquisition Progress Report 42-97: January–March 1989,
pp. 1–20, May 15, 1989.

Lichten, S. M.,
"Precise Estimation of Tropospheric Path Delays With GPS Techniques,"
The Telecommunications and Data Acquisition Progress Report 42-100: October–December 1989,
pp. 1–12, February 15, 1990.

Logan, Jr., R. T., G. F. Lutes, and L. Maleki,
"Effect of Laser Frequency Noise on Fiber-Optic Frequency Reference Distribution,"
The Telecommunications and Data Acquisition Progress Report 42-99: July–September 1989,
pp. 34–42, November 15, 1989.

Logan, Jr., R. T., G. F. Lutes, and L. Maleki,
"Microwave Analog Fiber-Optic Link for Use in the Deep Space Network,"
The Telecommunications and Data Acquisition Progress Report 42-100: October–December 1989,
pp. 21–33, February 15, 1990.

Lutes, G., and W. Diener,
"Thermal Coefficient of Delay for Various Coaxial and Fiber-Optic Cables,"
The Telecommunications and Data Acquisition Progress Report 42-99: July–September 1989,
pp. 43–59, November 15, 1989.

Lutes, G., and L. Primas,
"State-of-the-Art Fiber Optics for Short Distance Frequency Reference Distribution,"
The Telecommunications and Data Acquisition Progress Report 42-97: January–March 1989,
pp. 81–87, May 15, 1989.

Lyons, J. R.,
"Spin-Lattice Relaxation and the Calculation of Gain, Pump Power, and Noise Temperature in Ruby,"
The Telecommunications and Data Acquisition Progress Report 42-98: April–June 1989,
pp. 63–85, August 15, 1989.

McEliece, R., S. Dolinar, F. Pollara, and H. Van Tilborg (Eindhoven University, The Netherlands),
"Some Easily Analyzable Convolutional Codes,"
The Telecommunications and Data Acquisition Progress Report 42-99: July–September 1989,
pp. 105–114, November 15, 1989.

Mileant, A., and S. Hinedi,
"Costas Loop Lock Detection in the Advanced Receiver,"
The Telecommunications and Data Acquisition Progress Report 42-99: July–September 1989,
pp. 72–89, November 15, 1989.

Nerheim, N.,
"The Effects of Atmospheric Turbulence on Precision Optical Measurements Used for Antenna-Pointing Compensation,"
The Telecommunications and Data Acquisition Progress Report 42-97: January–March 1989,
pp. 141–148, May 15, 1989.

Nguyen, L.,
"Wideband Phase-Locked Angular Modulator,"
The Telecommunications and Data Acquisition Progress Report 42-98: April–June 1989,
pp. 150–156, August 15, 1989.

Onyszchuk, I.,
"Finding the Complete Path and Weight Enumerators of Convolutional Codes,"
The Telecommunications and Data Acquisition Progress Report 42-100: October–December 1989,
pp. 203–213, February 15, 1990.

Onyszchuk, I. M., K.-M. Cheung, and O. Collins,
"Quantization Effects in Viterbi Decoding Rate $1/n$ Convolutional Codes,"
The Telecommunications and Data Acquisition Progress Report 42-99: July–September 1989,
pp. 115–121, November 15, 1989.

Otoshi, T. Y., and M. M. Franco,
"Radiometric Tests on Wet and Dry Antenna Reflector Surface Panels,"
The Telecommunications and Data Acquisition Progress Report 42-100: October–December 1989,
pp. 111–130, February 15, 1990.

Perez, R. M., and D. J. Hoppe,
"Thermal Measurements of Microwave Transmitter Feedhorn Window,"
The Telecommunications and Data Acquisition Progress Report 42-97: January–March 1989,
pp. 156–161, May 15, 1989.

Pollara, F., and K.-M. Cheung,
"Performance of Concatenated Codes Using 8-Bit and 10-Bit Reed-Solomon Codes,"
The Telecommunications and Data Acquisition Progress Report 42-97: January–March 1989,
pp. 194–201, May 15, 1989.

Prestage, J. D., G. J. Dick, and L. Maleki,
"New Ion Trap for Atomic Frequency Standard Applications,"
The Telecommunications and Data Acquisition Progress Report 42-97: January–March 1989,
pp. 58–63, May 15, 1989.

Primas, L. E., G. F. Lutes, and R. L. Sydnor,
"Stabilized Fiber-Optic Frequency Distribution System,"
The Telecommunications and Data Acquisition Progress Report 42-97: January–March 1989,
pp. 88–97, May 15, 1989.

Rascoe, D. L., A. L. Riley, J. Huang, V. Lubecke, and L. Duffy,
"Ka-Band MMIC Beam Steered Transmitter Array,"
The Telecommunications and Data Acquisition Progress Report 42-98: April–June 1989,
pp. 207–217, August 15, 1989.

Rebold, T. A., and J. F. Weese,
"Parkes Radio Science System Design and Testing for Voyager Neptune Encounter,"
The Telecommunications and Data Acquisition Progress Report 42-99: July–September 1989,
pp. 189–205, November 15, 1989.

Richter, P. H., and S. D. Slobin,
"DSN 70-Meter Antenna X- and S-Band Calibration Part I: Gain Measurements,"
The Telecommunications and Data Acquisition Progress Report 42-97: January–March 1989,
pp. 314–351, May 15, 1989.

Richter, P. H., and S. D. Slobin,
"Errata to 'DSN 70-Meter Antenna X- and S-Band Calibration Part I: Gain Measurements,' The Telecommunications and Data Acquisition Progress Report 42-97: January–March 1989, May 15, 1989: pages 319 and 323,"
The Telecommunications and Data Acquisition Progress Report 42-99: July–September 1989,
p. 220, November 15, 1989.

Robinson, D. L.,
"A Novel Approach to a PPM-Modulated Frequency-Doubled Electro-Optic Cavity-Dumped Nd:YAG Laser,"
The Telecommunications and Data Acquisition Progress Report 42-97: January–March 1989,
pp. 240–247, May 15, 1989.

Ross, D. L.,
"Mark IV-A DSCC (Magellan-Era) Telemetry System Description,"
The Telecommunications and Data Acquisition Progress Report 42-100: October–December 1989,
pp. 263–273, February 15, 1990.

Rowan, D. R.,
"The DSS-14 C-Band Exciter,"
The Telecommunications and Data Acquisition Progress Report 42-97: January–March 1989,
pp. 292–299, May 15, 1989.

Ruggier, C. J.,
"The Effects of Sinusoidal Interference on the Second-Order Carrier Tracking Loop Preceded by a Bandpass Limiter in the Block IV Receiver,"
The Telecommunications and Data Acquisition Progress Report 42-99: July–September 1989,
pp. 161–169, November 15, 1989.

Rumsey, H. C., R. Stevens, and E. C. Posner,
"A Simple Model for DSS-14 Outage Times,"
The Telecommunications and Data Acquisition Progress Report 42-98: April–June 1989,
pp. 202–206, August 15, 1989.

Russell, R. K., and S. W. Thurman,
"An Analytic Development of Orbit Determination for a Distant, Planetary Orbiter,"
The Telecommunications and Data Acquisition Progress Report 42-98: April–June 1989,
pp. 1–25, August 15, 1989.

Scheid, R. E.,
"Precision Pointing Compensation for DSN Antennas With Optical Distance Measuring Sensors,"
The Telecommunications and Data Acquisition Progress Report 42-97: January–March 1989,
pp. 127–140, May 15, 1989.

Shah, B., and S. Hinedi,
"Performance of the Split-Symbol Moments SNR Estimator in the Presence of Inter-Symbol Interference,"
The Telecommunications and Data Acquisition Progress Report 42-98: April–June 1989,
pp. 157–173, August 15, 1989.

Slobin, S. D., and T. K. Peng,
"Radar RFI at Goldstone DSS 12 and DSS 16,"
The Telecommunications and Data Acquisition Progress Report 42-100: October–December 1989,
pp. 234–247, February 15, 1990.

Slobin, S. D., and P. H. Richter,
"DSN 70-Meter Antenna X- and S-Band Calibration Part II: System Noise Temperature Measurements and Telecommunications Link Evaluation,"
The Telecommunications and Data Acquisition Progress Report 42-97: January–March 1989,
pp. 352–366, May 15, 1989.

Smyth, P.,
"Automated Monitor and Control for Deep Space Network Subsystems,"
The Telecommunications and Data Acquisition Progress Report 42-98: April–June 1989,
pp. 110–120, August 15, 1989.

Statman, J., J. Rabkin, and B. Siev,
"Big Viterbi Decoder (BVD) Results for (7,1/2) Convolutional Code,"
The Telecommunications and Data Acquisition Progress Report 42-99: July–September 1989,
pp. 122–129, November 15, 1989.

Thurman, S. W.,
"Galileo Earth Approach Navigation Using Connected-Element Interferometer Phase-Delay Tracking,"
The Telecommunications and Data Acquisition Progress Report 42-100: October–December 1989,
pp. 34–47, February 15, 1990.

Thurman, S. W., and G. Badilla,
"Using Connected-Element Interferometer Phase-Delay Data for Magellan Navigation in Venus Orbit,"
The Telecommunications and Data Acquisition Progress Report 42-100: October–December 1989,
pp. 48–54, February 15, 1990.

Trowbridge, D. L., J. R. Loreman, T. J. Brunzie, and R. Quinn,
"An 8.4-GHz Dual-Maser Front-End System for Parkes Reimplementation,"
The Telecommunications and Data Acquisition Progress Report 42-100: October–December 1989,
pp. 301–319, February 15, 1990.

Truong, T. K., K.-M. Cheung, I. S. Reed (University of Southern California), and A. Shiozaki (Osaka Electro-Communication University, Japan),
"Fast Transform Decoding of Nonsystematic Reed-Solomon Codes,"
The Telecommunications and Data Acquisition Progress Report 42-99: July–September 1989,
pp. 130–140, November 15, 1989.

Truong, T.-K., I. S. Reed (University of Southern California), and X. Yin (University of Southern California),
"Decoding of 1/2-Rate (24,12) Golay Codes,"
The Telecommunications and Data Acquisition Progress Report 42-97: January–March 1989,
pp. 202–207, May 15, 1989.

Truong, T. K., E. Satorius, M. T. Shih (University of Southern California), and I. S. Reed (University of Southern California),
"A VLSI Design for a Systolic Viterbi Decoder,"
The Telecommunications and Data Acquisition Progress Report 42-100: October–December 1989,
pp. 221–233, February 15, 1990.

Tucker, T. K.,
"Operating and Environmental Characteristics of Sigma Tau Hydrogen Masers Used in the Very Long Baseline Array (VLBA),"
The Telecommunications and Data Acquisition Progress Report 42-97: January–March 1989,
pp. 72–80, May 15, 1989.

Ulvestad, J. S.,
"A Statistical Study of Radio-Source Structure Effects on Astrometric Very Long Baseline Interferometry Observations,"
The Telecommunications and Data Acquisition Progress Report 42-98: April–June 1989,
pp. 26–56, August 15, 1989.

Ulvestad, J. S., O. J. Sovers, and C. S. Jacobs,
"A Higher Density VLBI Catalog for Navigating Magellan and Galileo,"
The Telecommunications and Data Acquisition Progress Report 42-100: October–December 1989,
pp. 274–300, February 15, 1990.

Van Hek, R. A., and B. P. Saldua,
"Structural Fatigue in the 34-Meter HA-Dec Antennas,"
The Telecommunications and Data Acquisition Progress Report 42-100: October–December 1989,
pp. 252–262, February 15, 1990.

Vilnrotter, V. A., and E. R. Rodemich,
"A Real-Time Signal Combining System for Ka-Band Feed Arrays Using Maximum-Likelihood Weight Estimates,"
The Telecommunications and Data Acquisition Progress Report 42-100: October–December 1989,
pp. 81–99, February 15, 1990.

Wang, H. C., and G. H. Pitt III,
"Performance of the Image Statistics Decoder in Conjunction With the Goldstone–VLA Array,"
The Telecommunications and Data Acquisition Progress Report 42-98: April–June 1989,
pp. 138–140, August 15, 1989.

Wang, R. T., G. J. Dick, and D. M. Strayer,
"Operational Parameters for the Superconducting Cavity Maser,"
The Telecommunications and Data Acquisition Progress Report 42-97: January–March 1989,
pp. 64–71, May 15, 1989.

Williams, A., R. Melbourne, L. Maleki, G. Janik, and J. Prestage,
"An Apparatus for the Electrodynamic Containment of Charged Macroparticles,"
The Telecommunications and Data Acquisition Progress Report 42-98: April–June 1989,
pp. 57–62, August 15, 1989.

Open Literature

Aguirre, S. (Motorola, Chandler, Arizona), and S. Hinedi,
"Two Novel Automatic Frequency Tracking Loops,"
IEEE Transactions on Aerospace and Electronic Systems,
Vol. 25, No. 5, pp. 749–760, September 1989.

Ajello, J. M., G. K. James, B. O. Franklin, and D. E. Shemansky (University of Arizona),
"Medium-Resolution Studies of Extreme Ultraviolet Emission From N_2 by Electron Impact: Vibrational Perturbations and Cross Sections of the $c_4' {}^1\Sigma_u^+$ and $b' {}^1\Sigma_u^+$ States,"
Physical Review A—General Physics,
Vol. 40, No. 7, pp. 3524–3556, October 1, 1989.

Ajello, J. M., K. D. Pang, B. O. Franklin, S. K. Howell (Manchester University, England), and N. J. Bowring (Manchester University, England),
"A Study of Electron Impact Excitation of NO: The Middle Ultraviolet From 170 to 270 nm,"
Journal of Geophysical Research,
Vol. 94, No. A7, pp. 9105–9116, July 1, 1989.

Ajello, J. M., K. D. Pang, B. O. Franklin, S. K. Howell (Manchester University, England), and N. J. Bowring (Manchester University, England),
"A Study of Electron Impact Excitation of NO: The Vacuum Ultraviolet From 40 to 170 nm,"
Journal of Geophysical Research,
Vol. 94, No. A7, pp. 9093–9103, July 1, 1989.

Allen, L.,
"Remote Sensing of Global Change,"
Signal,
Vol. 44, No. 1, pp. 23–28, September 1989.

Ancellet, G. M., R. T. Menzies, and A. M. Brothers,
"Frequency Stabilization and Transverse Mode Discrimination in Injection-Seeded Unstable Resonator TEA CO_2 Lasers,"
Applied Physics B—Photophysics and Laser Chemistry,
Vol. B44, No. 1, pp. 29–35, September 1987.

Ancellet, G. M., R. T. Menzies, and W. B. Grant,
"Atmospheric Velocity Spectral Width Measurements Using the Statistical Distribution of Pulsed CO_2 Lidar Return Signal Intensities,"
Journal of Atmospheric and Oceanic Technology,
Vol. 6, No. 1, pp. 50–58, February 1989.

Anderson, J. D., N. J. Borderies, J. K. Campbell, J. A. Dunne, J. Ellis, R. W. Hellings, E. L. Lau, R. A. Preston, M. R. Traxler, J. G. Williams, C. F. Yoder, J. F. Chandler (Harvard–Smithsonian Center for Astrophysics, Cambridge, Massachusetts), R. D. Reasenberg (Harvard–Smithsonian Center for Astrophysics, Cambridge, Massachusetts), I. I. Shapiro (Harvard–Smithsonian Center for Astrophysics, Cambridge, Massachusetts), J. P. Berthias (Centre Spatial de Toulouse, France), J. Blamont (Centre Spatial de Toulouse, France), V. M. Linkin (Academy of Science, Moscow, U.S.S.R.), V. V. Kerzhanovich (Academy of Science, Moscow, U.S.S.R.), E. L. Akim (Academy of Science, Moscow, U.S.S.R.), and N. M. Ivanov (Flight Control Center, Glavcosmos, U.S.S.R.),
"Testing General Relativity With Landers on the Martian Satellite Phobos,"
Advances in Space Research,
Vol. 9, No. 9, pp. (9)71–(9)74, 1989.

Awwal, A. A. S. (University of Dayton, Ohio), M. A. Karim (University of Dayton, Ohio), and H.-K. Liu,
"Machine Parts Recognition Using a Trinary Associative Memory,"
Optical Engineering,
Vol. 28, No. 5, pp. 537–543, May 1989.

Barengoltz, J. B.,
"Particle Adhesion to Surfaces Under Vacuum,"
Journal of Spacecraft and Rockets,
Vol. 26, No. 2, pp. 103–108, March–April 1989.

Barhen, J., S. Gulati, and M. Zak,
"Neural Learning of Constrained Nonlinear Transformations,"
Computer,
Vol. 22, No. 6, pp. 67–76, June 1989.

PRECEDING PAGE BLANK NOT FILMED

Barmatz, M.,
"Overview of Containerless Processing Technologies,"
Materials Processing in the Reduced Gravity Environment of Space,
pp. 25–37, New York, New York: North-Holland, 1982.

Bartholomew, M. J., A. B. Kahle, and G. Hoover,
"Infrared Spectroscopy (2·3–20 μm) for the Geological Interpretation of Remotely Sensed Multispectral Thermal Infrared Data,"
International Journal of Remote Sensing,
Vol. 10, No. 3, pp. 529–544, March 1989.

Bayard, D. S.,
"Comments on 'An Algorithm for a Solution of a Stochastic Adaptive Linear Quadratic Optimal Control Problem,' "
IEEE Transactions on Automatic Control,
Vol. 34, No. 3, pp. 383–384, March 1989.

Beer, R., and T. A. Glavich,
"Remote Sensing of the Troposphere by Infrared Emission Spectroscopy,"
Advanced Optical Instrumentation for Remote Sensing of the Earth's Surface From Space,
SPIE Vol. 1129, pp. 42–51, 1989.

Bell, L. D., and W. J. Kaiser,
"Spatially Resolved Ballistic Electron Spectroscopy of Subsurface Interfaces,"
Journal of Microscopy,
Vol. 152, Part 3, pp. 605–610, December 1988.

Bellan, J., and K. Harstad,
"Transport-Related Phenomena for Clusters of Drops,"
International Journal of Heat and Mass Transfer,
Vol. 32, No. 10, pp. 2000–2002, October 1989.

Beratan, D. N.,
"Influence of Gap States on the Nonresonant Second Hyperpolarizabilities of Conjugated Organic Polymers,"
The Journal of Physical Chemistry,
Vol. 93, No. 10, pp. 3915–3920, May 18, 1989.

Beratan, D. N., M. A. Lee (Kent State University, Ohio), D. W. Allender (Kent State University, Ohio), and S. Risser (Kent State University, Ohio),
"Structural Dependence of the Pi-Electron Contributions to the Optical Second Hyperpolarizability of Linear Conjugated Organic Molecules,"
Liquid Crystal Chemistry, Physics, and Applications,
SPIE, Vol. 1080, pp. 101–107, 1989.

Beratan, D. N., J. N. Onuchic (Universidade de São Paulo, Brazil), and J. J. Hopfield (California Institute of Technology),
"Design of a True Molecular Electronic Device: The Electron Transfer Shift Register Memory,"
Molecular Electronics: Biosensors and Biocomputers,
pp. 353–360, New York, New York: Plenum Press, 1989.

Bergman, L. A., F. Halloran (U.S. Army Communications Electronics-Command, Fort Monmouth, New Jersey), and J. Martinez (U. S. Army Communications Electronics-Command, Fort Monmouth, New Jersey),
"Implementation of a Tactical Voice/Data Network Over FDDI,"
MILCOM '88—IEEE Military Communications Conference, San Diego, California, October 23–26, 1988,
Vol. 1, pp. 337–341, 1988.

Bernius, M. T., and A. Chutjian,
"High-Voltage, Full-Floating 10-MHz Square-Wave Generator With Phase Control,"
Review of Scientific Instruments,
Vol. 60, No. 4, pp. 779–782, April 1989.

Bernius, M. T., and A. Chutjian,
"Pulsed, High-Current, In-Line Reversal Electron Attachment Detector,"
Journal of Applied Physics,
Vol. 66, No. 7, pp. 2783–2788, October 1, 1989.

Biefeld, E. W., and L. P. Cooper,
"Scheduling With Chronology-Directed Search,"
AIAA Computers in Aerospace VII Conference and Exhibit, Monterey, California, October 3–5, 1989,
Part 2, pp. 1078–1087, 1989.

Billingsley, F. C., J. Johnson, E. Greenberg, and M. MacMedan,
"Facilitating Information Transfer in the Eos Era,"
IEEE Transactions on Geoscience and Remote Sensing,
Vol. 27, No. 2, pp. 117–124, 1989.

Birk, M., R. R. Friedl, E. A. Cohen, H. M. Pickett, and S. P. Sander,
"The Rotational Spectrum and Structure of Chlorine Peroxide,"
Journal of Chemical Physics,
Vol. 91, No. 11, pp. 6588–6597, December 1, 1989.

Blewitt, G.,
"Carrier Phase Ambiguity Resolution for the Global Positioning System Applied to Geodetic Baselines up to 2000 km,"
Journal of Geophysical Research,
Vol. 94, No. B8, pp. 10,187–10,203, August 10, 1989.

Bolton, S. J., S. Gulkis, M. J. Klein, I. de Pater (University of California, Berkeley), and T. J. Thompson,
"Correlation Studies Between Solar Wind Parameters and the Decimetric Radio Emission From Jupiter,"
Journal of Geophysical Research,
Vol. 94, No. A1, pp. 121–128, January 1, 1989.

Borenstain, S. I., and J. Katz,
"Evaluation of the Feasibility of a Far-Infrared Laser Based on Intersubband Transitions in GaAs Quantum Wells,"
Applied Physics Letters,
Vol. 55, No. 7, pp. 654–656, August 14, 1989.

Borenstain, S., and J. Katz,
"Intersubband Auger Recombination and Population Inversion in Quantum-Well Subbands,"
Physical Review B—Condensed Matter, Third Series,
Vol. 39, No. 15, Part II, pp. 10852–10857,
May 15, 1989.

Boussalis, D., C. C. Chu, C.-H. C. Ih, S. J. Wang, and H. A. Ryaciotaki-Boussalis (California State University, Los Angeles),
"Figure Control Concepts for Segmented Reflector Telescopes,"
Active Telescope Systems,
SPIE Vol. 1114, pp. 533–556, 1989.

Bradley, J. G., J. M. Conley, A. L. Albee (California Institute of Technology), J. S. Iwanczyk (University of Southern California), A. J. Dabrowski (University of Southern California), and W. K. Warburton (University of Southern California),
"Practical Application of HgI_2 Detectors to a Space-Flight Scanning Electron Microscope,"
Nuclear Instruments and Methods in Physics Research A,
Vol. A283, No. 2, pp. 348–351, November 1, 1989.

Brinca, A. L., and B. T. Tsurutani,
"Influence of Multiple Ion Species on Low-Frequency Electromagnetic Wave Instabilities,"
Journal of Geophysical Research,
Vol. 94, No. A10, pp. 13,565–13,569, October 1, 1989.

Brinca, A. L. (Instituto Superior Técnico, Lisbon, Portugal), and B. T. Tsurutani,
"The Oblique Behavior of Low-Frequency Electromagnetic Waves Excited by Newborn Cometary Ions,"
Journal of Geophysical Research,
Vol. 94, No. A1, pp. 3–14, January 1, 1989.

Brinca, A. L., and B. T. Tsurutani,
"On the Excitation of Cyclotron Harmonic Waves by Newborn Heavy Ions,"
Journal of Geophysical Research,
Vol. 94, No. A5, pp. 5467–5473, May 1, 1989.

Brinca, A. L., B. T. Tsurutani, and F. L. Scarf (TRW Space and Technology Group, Redondo Beach, California),
"Local Generation of Electrostatic Bursts at Comet Giacobini-Zinner: Modulation by Steepened Magnetosonic Waves,"
Journal of Geophysical Research,
Vol. 94, No. A1, pp. 60–64, January 1, 1989.

Brown, L. R., M. Loete (Université de Bourgogne, Dijon, France), and J. C. Hilico (Université de Bourgogne, Dijon, France),
"Linestrengths of the ν_2 and ν_4 Bands of $^{12}CH_4$ and $^{13}CH_4$[1],"
Journal of Molecular Spectroscopy,
Vol. 133, No. 2, pp. 273–311, February 1989.

Buti, B., and A. Eviatar,
"Plasma Conductivity for Comet Halley's Ionosphere,"
The Astrophysical Journal,
Vol. 336, No. 2, Part 2, pp. L71–L73, January 15, 1989.

Campbell, J. K., and J. D. Anderson,
"Gravity Field of the Saturnian System From *Pioneer* and *Voyager* Tracking Data,"
The Astronomical Journal,
Vol. 97, No. 5, pp. 1485–1495, May 1989.

Carrere, V.,
"Mapping Alteration in the Goldfield Mining District, Nevada, With the Airborne Visible/Infrared Imaging Spectrometer (AVIRIS),"
Seventh Thematic Conference on Remote Sensing for Exploration Geology, Calgary, Alberta, Canada, October 2–6, 1989,
Vol. 1, pp. 365–378, 1989.

Carsey, F.,
"Review and Status of Remote Sensing of Sea Ice,"
IEEE Journal of Oceanic Engineering,
Vol. 14, No. 2, pp. 127–138, April 1989.

Carsey, F. D., S. A. Digby Argus (Canada Centre for Remote Sensing/Intera, Ottawa, Ontario), M. J. Collins (York University, Canada), B. Holt, C. E. Livingstone (Canada Centre for Remote Sensing/DAD, Ottawa, Ontario), and C. L. Tang (Bedford Institute of Oceanography, Dartmouth, Nova Scotia, Canada),
"Overview of LIMEX'87 Ice Observations,"
IEEE Transactions on Geoscience and Remote Sensing,
Vol. 27, No. 5, pp. 468–482, September 1989.

Carsey, F. D., and G. Pihos,
"Beaufort–Chukchi Seas Summer and Fall Ice Margin Data From Seasat: Conditions With Similarities to the Labrador Sea,"
IEEE Transactions on Geoscience and Remote Sensing,
Vol. 27, No. 5, pp. 541–551, September 1989.

Carsey, F. D., and R. K. Raney (RADARSAT Project Office, Ottawa, Ontario, Canada),
"Foreword,"
IEEE Transactions on Geoscience and Remote Sensing,
Vol. 27, No. 5, pp. 466–467, September 1989.

Chadwick, O. A., D. M. Hendricks (University of Arizona), and W. D. Nettleton (USDA-SCS, Lincoln, Nebraska),
"Silicification of Holocene Soils in Northern Monitor Valley, Nevada,"
Soil Science Society of America Journal,
Vol. 53, No. 1, pp. 158–164, January–February 1989.

Chadwick, O. A., J. M. Sowers (University of California, Berkeley), and R. G. Amundson (University of California, Berkeley),
"Morphology of Calcite Crystals in Clast Coatings From Four Soils in the Mojave Desert Region,"
Soil Science Society of America Journal,
Vol. 53, No. 1, pp. 211–219, January–February 1989.

Chao, T.-H.,
"Real Time Optical Edge Enhancement Using a Hughes Liquid Crystal Light Valve,"
Applied Optics,
Vol. 28, No. 22, pp. 4727–4731, November 15, 1989.

Chao, T.-H., and H.-K. Liu,
"Real-Time Optical Holographic Tracking of Multiple Objects,"
Applied Optics,
Vol. 28, No. 2, pp. 226–231, January 15, 1989.

Chatterjee, A. K.,
"Optimal Orbit Transfer Suitable for Large Flexible Structures,"
The Journal of the Astronautical Sciences,
Vol. 37, No. 3, pp. 261–280, July–September 1989.

Cheung, K.-M.,
"More on the Decoder Error Probability for Reed-Solomon Codes,"
IEEE Transactions on Information Theory,
Vol. 35, No. 4, pp. 895–900, July 1989.

Cho, Y. I., and L. H. Back,
"*In Vitro* Flow Measurements in Ion Sputtered Hydrocephalus Shunts,"
Journal of Biomechanics,
Vol. 22, No. 4, pp. 335–342, 1989.

Clayton, R. M., and L. H. Back,
"Physical and Chemical Characteristics of Cenospheres From the Combustion of Heavy Fuel Oil,"
Journal of Engineering for Gas Turbines and Power,
Vol. 111, No. 4, pp. 679–684, October 1989.

Collas, P. (California State University, Northridge), M. Barmatz, and C. Shipley,
"Acoustic Levitation in the Presence of Gravity,"
The Journal of the Acoustical Society of America,
Vol. 86, No. 2, pp. 777–787, August 1989.

Collins, D. J.,
"The Remote Sensing of Oceanic Primary Productivity—A Review,"
Advanced Optical Instrumentation for Remote Sensing of the Earth's Surface From Space,
SPIE Vol. 1129, pp. 92–106, 1989.

Coulter, D. R., V. M. Miskowski, J. W. Perry, T.-H. Wei (University of Central Florida), E. W. Van Stryland (University of Central Florida), and D. J. Hagan (University of Central Florida),
"Optical Limiting in Solutions of Metallo-Phthalocyanines and Naphthalocyanines,"
Materials for Optical Switches, Isolators, and Limiters,
SPIE Vol. 1105, pp. 42–51, 1989.

Crippen, R. E.,
"A Simple Spatial Filtering Routine for the Cosmetic Removal of Scan-Line Noise From Landsat TM P-Tape Imagery,"
Photogrammetric Engineering and Remote Sensing,
Vol. 55, No. 3, pp. 327–331, March 1989.

Crisp, D., W. M. Sinton (University of Hawaii, Honolulu), K.-W. Hodapp (University of Hawaii, Honolulu), B. Ragent (San Jose State University Foundation, California), F. Gerbault (NASA Ames Research Center), J. H. Goebel (NASA Ames Research Center), R. G. Probst (Kitt Peak National Observatory, Tucson, Arizona), D. A. Allen (Anglo-Australian Observatory, Epping, New South Wales, Australia), K. Pierce (California Institute of Technology), and K. R. Stapelfeldt (California Institute of Technology),
"The Nature of the Near-Infrared Features on the Venus Night Side,"
Science,
Vol. 246, No. 4929, pp. 506–509, October 27, 1989.

Curlander, J. C.,
"The Earth Observing System (Eos) SAR Ground Data System,"
Millimeter Wave and Synthetic Aperture Radar,
SPIE Vol. 1101, pp. 210–220, 1989.

D'Amario, L. A.,
"Trajectory Optimization Software for Planetary Mission Design,"
The Journal of the Astronautical Sciences,
Vol. 37, No. 3, pp. 213–220, July–September 1989.

D'Amario, L. A., D. V. Byrnes, R. E. Diehl, L. E. Bright, and A. A. Wolf,
"Preliminary Design for a Proposed Saturn Mission With a Second Galileo Spacecraft,"
The Journal of the Astronautical Sciences,
Vol. 37, No. 3, pp. 307–331, July–September 1989.

D'Amario, L. A., D. V. Byrnes, J. R. Johannesen, and B. G. Nolan,
"Galileo 1989 VEEGA Trajectory Design,"
The Journal of the Astronautical Sciences,
Vol. 37, No. 3, pp. 281–306, July–September 1989.

Davarian, F., and J. T. Sumida,
"A Multipurpose Digital Modulator,"
IEEE Communications Magazine,
Vol. 27, No. 2, pp. 36–45, February 1989.

Davis, C. O.,
"Future U.S. Ocean Color Missions—OCI, MODIS, and HIRIS,"
Advances in Space Research,
Vol. 7, No. 2, pp. (2)3–(2)9, 1987.

Deininger, W. D., and R. J. Vondra (W. J. Schafer Associates, Arlington, Virginia),
"Electric Propulsion for Constellation Deployment and Spacecraft Maneuvering,"
Journal of Spacecraft and Rockets,
Vol. 26, No. 5, pp. 352–357, September–October 1989.

Delitsky, M. L., A. Eviatar (University of California, Los Angeles), and J. D. Richardson (Massachusetts Institute of Technology),
"A Predicted Triton Plasma Torus in Neptune's Magnetosphere,"
Geophysical Research Letters,
Vol. 16, No. 2, pp. 215–218, February 1989.

Denning, R. F., S. L. Guidero, G. S. Parks, and B. L. Gary,
"Instrument Description of the Airborne Microwave Temperature Profiler,"
Journal of Geophysical Research,
Vol. 94, No. D14, pp. 16,757–16,765, November 30, 1989.

Dickey, J. O., X. X. Newhall, and J. G. Williams,
"Investigating Relativity Using Lunar Laser Ranging: Geodetic Precession and the Nordtvedt Effect,"
Advances in Space Research,
Vol. 9, No. 9, pp. (9)75–(9)78, 1989.

Dixon, T. H., and M. P. Golombek,
"Late Precambrian Crustal Accretion Rates in Northeast Africa and Arabia,"
Geology,
Vol. 16, pp. 991–994, November 1988.

Dixon, T. H., E. R. Ivins, and B. J. Franklin,
"Topographic and Volcanic Asymmetry Around the Red Sea: Constraints on Rift Models,"
Tectonics,
Vol. 8, No. 6, pp. 1193–1216, December 1989.

Doyle, R. J.,
"Creating and Using Causal Models,"
Applied Artificial Intelligence,
Vol. 3, Nos. 2 and 3, pp. 59(143)–82(166), April–September 1989.

Doyle, R. J., D. Berleant, L. P. Falcone, and U. M. Fayyad,
"Selective Simulation and Selective Sensor Interpretation in Monitoring,"
AIAA Computers in Aerospace VII Conference and Exhibit, Monterey, California, October 3–5, 1989,
Part 2, pp. 859–870, 1989.

Draper, S. L. (NASA Lewis Research Center), J. W. Vandersande, C. Wood, R. Masters (Thermo Electron Technologies Corp., Waltham, Massachusetts), and V. Raag (Thermo Electron Technologies Corp., Waltham, Massachusetts),
"Effect of Ga and P Dopants on the Thermoelectric Properties of N-Type SiGe,"
Proceedings of the 24th Intersociety Energy Conversion Engineering Conference, Washington, D.C., August 6–11, 1989,
Vol. 2, pp. 711–714, 1989.

Drinkwater, M. R.,
"LIMEX '87 Ice Surface Characteristics: Implications for *C*-Band SAR Backscatter Signatures,"
IEEE Transactions on Geoscience and Remote Sensing,
Vol. 27, No. 5, pp. 501–513, September 1989.

Drinkwater, M. R., and V. A. Squire (University of Otago, New Zealand),
"*C*-Band SAR Observations of Marginal Ice Zone Rheology in the Labrador Sea,"
IEEE Transactions on Geoscience and Remote Sensing,
Vol. 27, No. 5, pp. 522–534, September 1989.

Duh, K. H. G. (GE Electronics Laboratory, Syracuse, New York), W. F. Kopp (GE Electronics Laboratory, Syracuse, New York), P. Ho (GE Electronics Laboratory, Syracuse, New York), P.-C. Chao (GE Electronics Laboratory, Syracuse, New York), M.-Y. Kao (GE Electronics Laboratory, Syracuse, New York), P. M. Smith (GE Electronics Laboratory, Syracuse, New York), J. M. Ballingall (GE Electronics Laboratory, Syracuse, New York), J. J. Bautista, and G. G. Ortiz,
"32-GHZ Cryogenically Cooled HEMT Low-Noise Amplifiers,"
IEEE Transactions on Electron Devices,
Vol. 36, No. 8, pp. 1528–1535, August 1989.

Durden, S. L., J. J. van Zyl, and H. A. Zebker,
"Modeling and Observation of the Radar Polarization Signature of Forested Areas,"
IEEE Transactions on Geoscience and Remote Sensing,
Vol. 27, No. 3, pp. 290–301, May 1989.

Duxbury, T. C.,
"The Figure of Phobos,"
Icarus,
Vol. 78, No. 1, pp. 169–180, March 1989.

Duxbury, T. C., and J. D. Callahan,
"Phobos and Deimos Astrometric Observations From Mariner 9,"
Astronomy and Astrophysics,
Vol. 216, No. 1–2, pp. 284–293, June 1989.

Duxbury, T. C., and J. D. Callahan,
"Phobos and Deimos Control Networks,"
Icarus,
Vol. 77, No. 2, pp. 275–286, February 1989.

Edmonds, L. D.,
"A Distribution Function for Double-Bit Upsets,"
IEEE Transactions on Nuclear Science,
Vol. 36, No. 2, pp. 1344–1346, April 1989.

Edwards, C. D.,
"Angular Navigation on Short Baselines Using Phase Delay Interferometry,"
IEEE Transactions on Instrumentation and Measurement,
Vol. 38, No. 2, pp. 665–667, April 1989.

Edwards, C. D.,
"A Statistical Study of the Differential Very Long Baseline Interferometry Delay Rate Error Budget,"
Astrodynamics 1989,
Part 1, pp. 553–571, San Diego, California: Univelt, Inc., 1990.

El-Raheb, M., and P. Wagner,
"Acoustic Radiation From a Shell With Internal Structures,"
The Journal of the Acoustical Society of America,
Vol. 85, No. 6, pp. 2452–2464, June 1989.

El-Raheb, M., and P. Wagner,
"Adaptation of Boundary Elements to the Dynamics of Elastic Solids,"
The Journal of the Acoustical Society of America,
Vol. 85, No. 2, pp. 753–758, February 1989.

El-Raheb, M., and P. Wagner,
"Wave Propagation in a Thin Cylinder That Includes Point Masses,"
The Journal of the Acoustical Society of America,
Vol. 85, No. 2, pp. 759–767, February 1989.

Elson, L. S.,
"Three-Dimensional Linear Instability Modeling of the Cloud Level Venus Atmosphere,"
Journal of the Atmospheric Sciences,
Vol. 46, No. 23, pp. 3559–3568, December 1, 1989.

Esproles, C. (Ball Systems Engineering Division, Pasadena, California), D. M. Tratt, and R. T. Menzies,
"Automated Rejection of Parasitic Frequency Sidebands in Heterodyne-Detection LIDAR Applications,"
Review of Scientific Instruments,
Vol. 60, No. 1, pp. 78–81, January 1989.

Estabrook, F. B., and H. D. Wahlquist,
"Classical Geometries Defined by Exterior Differential Systems on Higher Frame Bundles,"
Classical and Quantum Gravity,
Vol. 6, No. 3, pp. 263–274, 1989.

Eviatar, A., R. Goldstein, D. T. Young (Southwest Research Institute, Texas), H. Balsiger (University of Bern, Switzerland), H. Rosenbauer (Max Planck Institut für Aeronomie, Federal Republic of Germany), and S. A. Fuselier (Lockheed Palo Alto Research Laboratory, California),
"Energetic Ion Fluxes in the Inner Coma of Comet P/Halley,"
The Astrophysical Journal,
Vol. 339, No. 1, pp. 545–557, April 1, 1989.

Fathauer, R. W., C. W. Nieh (California Institute of Technology), Q. F. Xiao (State University of New York at Albany), and S. Hashimoto (State University of New York at Albany),
"Growth of Single-Crystal Columns of $CoSi_2$ Embedded in Epitaxial Si on Si(111) by Molecular Beam Epitaxy,"
Applied Physics Letters,
Vol. 55, No. 3, pp. 247–249, July 17, 1989.

Federman, S. R., and W. T. Huntress, Jr.,
"Diffuse Interstellar Clouds as a Chemical Laboratory: The Chemistry of Diatomic Carbon Species,"
The Astrophysical Journal,
Vol. 338, No. 1, pp. 140–146, March 1, 1989.

Feynman, J.,
"Comment on 'Interplanetary Protons (Ep ≈ 1 MeV) 1973–1986 and Out to 22.4 AU,' "
Geophysical Research Letters,
Vol. 15, No. 8, pp. 840–841, August 1988.

Feynman, J.,
"The Solar Wind: Advances in Our Knowledge Through Two Solar Cycles,"
Advances in Space Research,
Vol. 9, No. 4, pp. (4)89–(4)97, 1989.

Fijany, A., and A. K. Bejczy,
"A Class of Parallel Algorithms for Computation of the Manipulator Inertia Matrix,"
IEEE Transactions on Robotics and Automation,
Vol. 5, No. 5, pp. 600–615, October 1989.

Fiorini, P., and A. Inselberg (IBM Scientific Center, Los Angeles, California),
"Configuration Space Representation in Parallel Coordinates,"
Proceedings of the 1989 IEEE International Conference on Robotics and Automation, Scottsdale, Arizona, May 14–19, 1989,
Vol. 2, pp. 1215–1220, 1989.

Forouhar, S., J. Cody, and J. Katz,
"GaInAsSb/AlGaAsSb Injection Lasers for Remote Sensing Applications,"
Laser Applications in Meteorology and Earth and Atmospheric Remote Sensing,
SPIE Vol. 1062, pp. 16–20, 1989.

Frerking, M. A., J. Keene (California Institute of Technology), G. A. Blake (California Institute of Technology), and T. G. Phillips (California Institute of Technology),
"The Abundances of Atomic Carbon and Carbon Monoxide Compared With Visual Extinction in the Ophiuchus Molecular Cloud Complex,"
The Astrophysical Journal,
Vol. 344, No. 1, Part 1, pp. 311–319, September 1, 1989.

Friedl, R. R., and S. P. Sander,
"Kinetics and Product Studies of the Reaction ClO + BrO Using Discharge-Flow Mass Spectrometry,"
The Journal of Physical Chemistry,
Vol. 93, No. 12, pp. 4756–4764, June 15, 1989.

Fu, L.-L., D. B. Chelton (Oregon State University), and V. Zlotnicki,
"Satellite Altimetry: Observing Ocean Variability From Space,"
Oceanography,
Vol. 1, No. 2, pp. 4–11, 58, and back cover, November 1988.

Fu, L.-L., and V. Zlotnicki,
"Observing Oceanic Mesoscale Eddies From Geosat Altimetry: Preliminary Results,"
Geophysical Research Letters,
Vol. 16, No. 5, pp. 457–460, May 1989.

Gabriel, A. K., R. M. Goldstein, and H. A. Zebker,
"Mapping Small Elevation Changes Over Large Areas: Differential Radar Interferometry,"
Journal of Geophysical Research,
Vol. 94, No. B7, pp. 9183–9191, July 10, 1989.

Garrison, P. W., and J. F. Stocky,
"Future Spacecraft Propulsion,"
Journal of Propulsion and Power,
Vol. 4, No. 6, pp. 520–525, November–December 1988.

Gary, B. L.,
"Observational Results Using the Microwave Temperature Profiler During the Airborne Antarctic Ozone Experiment,"
Journal of Geophysical Research,
Vol. 94, No. D9, pp. 11,223–11,231, August 30, 1989.

Glaser, R. J., C. P. Kuo, and B. K. Wada,
"Multiple Boundary Condition Testing Error Analysis,"
30th AIAA/ASME/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference, Mobile, Alabama, April 3–5, 1989,
Part 1, pp. 12–20, 1989.

Glazer, S., and G. Siebes,
"Infrared Radiometric Technique for Rapid Quantitative Evaluation of Heat Flux Distribution Over Large Areas,"
Thermosense XI,
SPIE Vol. 1094, pp. 123 and 138–147, 1989.

Glazman, R. E., and P. B. Weichman (California Institute of Technology),
"Statistical Geometry of a Small Surface Patch in a Developed Sea,"
Journal of Geophysical Research,
Vol. 94, No. C4, pp. 4998–5010, April 15, 1989.

Goetz, A. F. H. (University of Colorado, Boulder), and M. Herring,
"The High Resolution Imaging Spectrometer (HIRIS) for Eos,"
IEEE Transactions on Geoscience and Remote Sensing,
Vol. 27, No. 2, pp. 136–144, March 1989.

Goguen, J. D. (University of Hawaii, Honolulu), H. B. Hammel (University of Hawaii, Honolulu), and R. H. Brown,
"V Photometry of Titania, Oberon, and Triton,"
Icarus,
Vol. 77, No. 2, pp. 239–247, February 1989.

Goldstein, B. E., K. Altwegg (University of Bern, Switzerland), H. Balsiger (University of Bern, Switzerland), S. A. Fuselier (Lockheed Palo Alto Research Laboratory, California), W.-H. Ip (Max-Planck-Institut für Aeronomie, Katlenburg-Lindau, Federal Republic of Germany), A. Meier (University of Bern, Switzerland), M. Neugebauer, H. Rosenbauer (Max-Planck-Institut für Aeronomie, Katlenburg-Lindau, Federal Republic of Germany), and R. Schwenn (Max-Planck-Institut für Aeronomie, Katlenburg-Lindau, Federal Republic of Germany),
"Observations of a Shock and a Recombination Layer at the Contact Surface of Comet Halley,"
Journal of Geophysical Research,
Vol. 94, No. A12, pp. 17,251–17,257, December 1, 1989.

Goldstein, R. M., T. P. Barnett (Scripps Institution of Oceanography, La Jolla, California), and H. A. Zebker,
"Remote Sensing of Ocean Currents,"
Science,
Vol. 246, No. 4935, pp. 1282–1285, December 8, 1989.

Gonzalez, W. D. (Instituto de Pesquisas Espaciais, São José dos Campos, Brazil), B. T. Tsurutani, A. L. C. Gonzalez (Instituto de Pesquisas Espaciais, São José dos Campos, Brazil), E. J. Smith, F. Tang (California Institute of Technology), and S.-I. Akasofu (University of Alaska, Fairbanks),
"Solar Wind–Magnetosphere Coupling During Intense Magnetic Storms (1978–1979),"
Journal of Geophysical Research,
Vol. 94, No. A7, pp. 8835–8851, July 1, 1989.

Goody, R., R. West, L. Chen, and D. Crisp,
"The Correlated-k Method for Radiation Calculations in Nonhomogeneous Atmospheres,"
Journal of Quantitative Spectroscopy and Radiative Transfer,
Vol. 42, No. 6, pp. 539–550, December 1989.

Graham, E. M., V. M. Miskowski, J. W. Perry, D. R. Coulter, A. E. Stiegman, W. P. Schaefer (California Institute of Technology), and R. E. Marsh (California Institute of Technology),
"Unusual Structural Distortions Induced by Charge-Transfer Interactions Through Conjugated Molecules: Crystal Structures of $NH_2C_6H_4(C{\equiv}C)_nC_6H_4NO_2$ (n = 0–3),"
Journal of the American Chemical Society,
Vol. 111, No. 24, pp. 8771–8779, November 22, 1989.

Greenhall, C. A.,
"A Method for Using a Time Interval Counter to Measure Frequency Stability,"
IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control,
Vol. 36, No. 5, pp. 478–480, September 1989.

Greenhall, C. A.,
"Trigonometric Substitutes for Prolate Spheroidal Data Windows,"
Twenty-Third Asilomar Conference on Signals, Systems and Computers, Pacific Grove, California, October 30–November 1, 1989,
Vol. 1, pp. 351–354, 1989.

Grunthaner, P. J., F. J. Grunthaner, R. W. Fathauer, T. L. Lin, M. H. Hecht, L. D. Bell, W. J. Kaiser, F. D. Schowengerdt (Colorado School of Mines), and J. H. Mazur (University of Southern California),
"Hydrogen-Terminated Silicon Substrates for Low-Temperature Molecular Beam Epitaxy,"
Thin Solid Films,
Vol. 183, pp. 197–212, December 30, 1989.

Halpern, D.,
"Detection of 17.5-Day Period Meridional Current Oscillations in the Equatorial Western Pacific Ocean During 1985,"
Geophysical Research Letters,
Vol. 16, No. 6, pp. 499–502, June 1989.

Halpern, D.,
"Seasat A Satellite Scatterometer Measurements of Equatorial Surface Winds,"
Journal of Geophysical Research,
Vol. 94, No. C4, pp. 4829–4833, April 15, 1989.

Halpern, D.,
"TOGA Real Time Oceanography in the Pacific,"
Understanding Climate Change,
pp. 127–135, Washington, D.C.: American Geophysical Union, 1989.

Halpern, D., R. A. Knox (University of California, San Diego), D. S. Luther (University of California, San Diego), and S. G. H. Philander (Princeton University, New Jersey),
"Estimates of Equatorial Upwelling Between 140° and 110°W During 1984,"
Journal of Geophysical Research,
Vol. 94, No. C6, pp. 8018–8020, June 15, 1989.

Halpern, D., and R. H. Weisberg (University of South Florida, St. Petersburg),
"Upper Ocean Thermal and Flow Fields at 0°, 28°W (Atlantic) and 0°, 140°W (Pacific) During 1983–85,"
Deep-Sea Research,
Vol. 36, No. 3, pp. 407–418, 1989.

Hammel, H. B.,
"Neptune Cloud Structure at Visible Wavelengths,"
Science,
Vol. 244, No. 4909, pp. 1165–1167, June 9, 1989.

Hammel, H. B. (University of Hawaii, Honolulu), K. H. Baines, and J. T. Bergstralh,
"Vertical Aerosol Structure of Neptune: Constraints From Center-to-Limb Profiles,"
Icarus,
Vol. 80, No. 2, pp. 416–438, August 1989.

Hammel, H. B., R. F. Beebe (New Mexico State University), E. M. De Jong (California Institute of Technology), C. J. Hansen, C. D. Howell (California Institute of Technology), A. P. Ingersoll (California Institute of Technology), T. V. Johnson, S. S. Limaye (University of Wisconsin–Madison), J. A. Magalhães (Stanford University, California), J. B. Pollack (NASA Ames Research Center), L. A. Sromovsky (University of Wisconsin–Madison), V. E. Suomi (University of Wisconsin–Madison), and C. E. Swift (California Institute of Technology),
"Neptune's Wind Speeds Obtained by Tracking Clouds in Voyager Images,"
Science,
Vol. 245, pp. 1367–1369, September 22, 1989.

Haner, D. A., and R. T. Menzies,
"Reflectance Characteristics of Reference Materials Used in Lidar Hard Target Calibration,"
Applied Optics,
Vol. 28, No. 5, pp. 857–864, March 1, 1989.

Hannaford, B.,
"A Design Framework for Teleoperators With Kinesthetic Feedback,"
IEEE Transactions on Robotics and Automation,
Vol. 5, No. 4, pp. 426–434, August 1989.

Hanner, M. S., and R. L. Newburn,
"Infrared Photometry of Comet Wilson (1986l) at Two Epochs,"
The Astronomical Journal,
Vol. 97, No. 1, pp. 254–261, January 1989.

Hatakeyama, S., and M.-T. Leu,
"Rate Constants for Reactions Between Atmospheric Reservoir Species. 2. H_2O,"
The Journal of Physical Chemistry,
Vol. 93, No. 15, pp. 5784–5789, 1989.

Hayati, S., K. Tso, and T. Lee,
"Dual Arm Coordination and Control,"
Robotics and Autonomous Systems,
Vol. 5, No. 4, pp. 333–344, December 1989.

Hayati, S., and S. T. Venkataraman,
"Design and Implementation of a Robot Control System With Traded and Shared Control Capability,"
Proceedings of the 1989 IEEE International Conference on Robotics and Automation, Scottsdale, Arizona, May 14–19, 1989,
Vol. 3, pp. 1310–1315, 1989.

Hecht, M. H., L. D. Bell, and W. J. Kaiser,
"Ballistic-Electron-Emission Microscopy of Subsurface Defects at the Au–GaAs(100) Interface,"
Applied Surface Science,
Vol. 41–42, pp. 17–24, 1989.

Hecht, M. H., L. D. Bell, W. J. Kaiser, and F. J. Grunthaner,
"Ballistic-Electron-Emission Microscopy Investigation of Schottky Barrier Interface Formation,"
Applied Physics Letters,
Vol. 55, No. 8, pp. 780–782, August 21, 1989.

Hecht, M. H., O. J. Orient, A. Chutjian, and R. P. Vasquez,
"Oxidation of Silicon With a 5 eV O^- Beam,"
Applied Physics Letters,
Vol. 54, No. 5, pp. 421–423, January 30, 1989.

Hemmati, H.,
"2.07-μm cw Diode-Laser-Pumped Tm,Ho:$YLiF_4$ Room-Temperature Laser,"
Optics Letters,
Vol. 14, No. 9, pp. 435–437, May 1, 1989.

Hilland, J. E.,
"Ground Data System Architecture for Precipitation Determination From Space-Based Radar,"
Oceans '89, Seattle, Washington, September 18–21, 1989,
pp. 987–991, 1989.

Holt, B.,
"Introduction: Studies of Ocean Wave Spectra From the Shuttle Imaging Radar-B Experiment,"
Journal of Geophysical Research,
Vol. 93, No. C12, pp. 15,365–15,366, December 15, 1988.

Hopfield, J. J. (California Institute of Technology), J. N. Onuchic (Universidade de São Paulo, Brazil), and D. N. Beratan,
"Electronic Shift Register Memory Based on Molecular Electron-Transfer Reactions,"
The Journal of Physical Chemistry,
Vol. 93, No. 17, pp. 6350–6357, August 24, 1989.

Huang, J., and V. Jamnejad,
"A Microstrip Array Feed for Land Mobile Satellite Reflector Antennas,"
IEEE Transactions on Antennas and Propagation,
Vol. 37, No. 2, pp. 153–158, February 1989.

Hunt, B. D., H. G. LeDuc, S. R. Cypher, J. A. Stern, and A. Judas (Massachusetts Institute of Technology),
"NbN/MgO/NbN Edge-Geometry Tunnel Junctions,"
Applied Physics Letters,
Vol. 55, No. 1, pp. 81–83, July 3, 1989.

Hunt, Jr., E. R., and B. N. Rock (University of New Hampshire),
"Detection of Changes in Leaf Water Content Using Near- and Middle-Infrared Reflectances,"
Remote Sensing of Environment,
Vol. 30, No. 1, pp. 43–54, October 1989.

Iannelli, J. M., J. Maserjian, B. R. Hancock, P. O. Andersson, and F. J. Grunthaner,
"Optically Controlled Absorption Modulator Based on State Filling of $In_xGa_{1-x}As$/GaAs Quantum Wells,"
Applied Physics Letters,
Vol. 54, No. 4, pp. 301–303, January 23, 1989.

Ih, C.-H. C., D. S. Bayard, A. Ahmed, and S. J. Wang,
"Experiments in Multivariable Adaptive Control of a Large Flexible Structure,"
AIAA Guidance, Navigation and Control Conference, Boston, Massachusetts, August 14–16, 1989,
Part 2, pp. 1207–1217, 1989.

Ionasescu, R., and P. A. Penzo,
"Innovative Uses of Tethers in Space,"
Space Tethers for Science in the Space Station Era; Proceedings of the Second International Conference, Venice, Italy, October 4–8, 1987,
pp. 305–313, 1988.

Ivins, E. R.,
"New Aspects of Rotational Dynamics Within the North American–Pacific Ductile Shear Zone,"
Deep Structure and Past Kinematics of Accreted Terranes,
pp. 179–201, Washington, D.C.: American Geophysical Union, 1989.

Jaffe, L. D.,
"Test Results on Parabolic Dish Concentrators for Solar Thermal Power Systems,"
Solar Energy,
Vol. 42, No. 2, pp. 173–187, 1989.

Jauncey, D. L. (CSIRO, Epping, New South Wales, Australia), A. Savage (UK Schmidt Telescope Unit of the Royal Observatory, Edinburgh, United Kingdom), D. D. Morabito, R. A. Preston, G. D. Nicolson (CSIR, Johannesburg, South Africa), and A. K. Tzioumis (University of Sydney, Australia),
"Optical Identifications of Southern Compact Radio Sources,"
The Astronomical Journal,
Vol. 98, No. 1, pp. 54–63 and 344–346, July 1989.

Jauncey, D. L. (CSIRO, Epping, New South Wales, Australia), A. K. Tzioumis (University of Sydney, Australia), R. A. Preston, D. L. Meier, R. Batchelor (CSIRO, Epping, New South Wales, Australia), J. Gates (CSIRO, Epping, New South Wales, Australia), P. A. Hamilton (University of Tasmania, Australia), B. R. Harvey (University of New South Wales, Australia), R. F. Haynes (CSIRO, Epping, New South Wales, Australia), B. Johnson (Ford Aerospace and Communications Corp., Sunnyvale, California), P. McCulloch (University of Tasmania, Australia), G. Moorey (CSIRO, Epping, New South Wales, Australia), D. D. Morabito, G. D. Nicolson (CSIR, Johannesburg, South Africa), A. E. Niell, J. G. Robertson (University of Sydney, Australia), G. W. R. Royle (University of Tasmania, Australia), L. Skjerve, M. A. Slade, O. B. Slee (CSIRO, Epping, New South Wales, Australia), A. Watkinson (University of Sydney, Australia), A. E. Wehrle, and A. E. Wright (CSIRO, Epping, New South Wales, Australia),
"Radio Structure at 8.4 GHz in Sagittarius A*, the Compact Radio Source at the Galactic Center,"
The Astronomical Journal,
Vol. 98, No. 1, pp. 44–48, July 1989.

Jauncey, D. L. (CSIRO, Epping, New South Wales, Australia), G. L. White (CSIRO, Epping, New South Wales, Australia), R. A. Preston, A. E. Niell, B. R. Harvey (University of New South Wales, Australia), D. D. Morabito, D. L. Meier, M. A. Slade, A. Stolz (University of New South Wales, Australia), and A. K. Tzioumis (University of Sydney, Australia),
"A Comparison Between Accurate Radio and Optical Positions for Six Southern Hemisphere Extragalactic Sources,"
The Astronomical Journal,
Vol. 98, No. 1, pp. 49–53, July 1989.

Jimenez, J. R. (Rensselaer Polytechnic Institute, Troy, New York), Z.-C. Wu (Rensselaer Polytechnic Institute, Troy, New York), L. J. Schowalter (Rensselaer Polytechnic Institute, Troy, New York), B. D. Hunt (General Electric Corporate Research and Development Center, Schenectady, New York), R. W. Fathauer, P. J. Grunthaner, and T. L. Lin,
"Optical Properties of Epitaxial $CoSi_2$ and $NiSi_2$ Films on Silicon,"
Journal of Applied Physics,
Vol. 66, No. 6, pp. 2738–2741, September 15, 1989.

Jones, D. L., and D. J. Diner,
"A Sub-Millimetre Aperture Synthesis Array for Nonsolar Planet Detection,"
Nature,
Vol. 337, No. 6202, pp. 51–53, January 5, 1989.

Jones, R. M.,
"Electromagnetically Launched Microspacecraft for Space Science Missions,"
Journal of Spacecraft and Rockets,
Vol. 26, No. 5, pp. 338–342, September–October 1989.

Kachare, R., and B. E. Anspaugh,
"Anomalous Effects in Silicon Solar Cell Irradiated by 1-MeV Protons,"
Journal of Applied Physics,
Vol. 66, No. 6, pp. 2662–2666, September 15, 1989.

Kaiser, W. J., L. D. Bell, M. H. Hecht, and F. J. Grunthaner,
"Ballistic Electron Emission Microscopy and Spectroscopy of Au/GaAs Interfaces,"
Journal of Vacuum Science and Technology B,
Vol. 7, No. 4, pp. 945–949, July/August 1989.

Kellogg, J. (University of South Carolina, Columbia), T. Dixon, and R. Neilan,
"CASA—Central and South America GPS Geodesy,"
Eos,
Vol. 70, No. 24, pp. 649, 651, 655–656, June 13, 1989.

Kennett, R. G., and F. K. Li,
"Seasat Over-Land Scatterometer Data, Part I: Global Overview of the Ku-Band Backscatter Coefficients,"
IEEE Transactions on Geoscience and Remote Sensing,
Vol. 27, No. 5, pp. 592–605, September 1989.

Kennett, R. G., and F. K. Li,
"Seasat Over-Land Scatterometer Data, Part II: Selection of Extended Area Land-Target Sites for the Calibration of Spaceborne Scatterometers,"
IEEE Transactions on Geoscience and Remote Sensing,
Vol. GE-27, No. 6, pp. 779–788, November 1989.

Kerr, E. L.,
"Fraunhofer Filters to Reduce Solar Background for Optical Communications,"
Optical Engineering,
Vol. 28, No. 9, pp. 963–968, September 1989.

Kerr, Y. H., J. Imbernon (Institut de Recherche en Agronomie Tropicale, Montpellier, France), G. Dedieu (Laboratoire d'Etudes et de Recherches en Télédétection Spatiale, Toulouse Cedex, France), O. Hautecoeur (Ecole Nationale Supérieure Agronomique de Toulouse, Toulouse Cedex, France), J. P. Lagouarde (Institut National de la Recherche Agronomique, Montfavet, France), and B. Seguin (Institut National de la Recherche Agronomique, Montfavet, France),
"NOAA AVHRR and Its Uses for Rainfall and Evapotranspiration Monitoring,"
International Journal of Remote Sensing,
Vol. 10, Nos. 4 and 5, pp. 847–854, April–May 1989.

Kim, J.-H., R. J. Lang, G. Radhakrishnan, J. Katz, A. A. Narayanan (Hughes Research Laboratory, Malibu, California), and R. R. Craig (Hughes Research Laboratory, Malibu, California),
"High-Power Low-Threshold Graded-Index Separate Confinement Heterostructure AlGaAs Single Quantum Well Lasers on Si Substrates,"
Applied Physics Letters,
Vol. 55, No. 15, pp. 1492–1494, October 9, 1989.

Kim, J. H., S. H. Lin (California Institute of Technology), J. Katz, and D. Psaltis (California Institute of Technology),
"Monolithically Integrated Two-Dimensional Arrays of Optoelectronic Threshold Devices for Neural Network Applications,"
Laser Diode Technology and Applications,
SPIE Vol. 1043, pp. 44–52, 1989.

Kim, J.-H., G. Radhakrishnan, A. Nouhi, J. K. Liu, R. J. Lang, and J. Katz,
"High-Power AlGaAs/GaAs DH Stripe Laser Diodes on GaAs-on-Si Prepared by Migration-Enhanced Molecular Beam Epitaxy,"
Japanese Journal of Applied Physics,
Vol. 28, No. 5, pp. 791–796, May 1989.

Kim, S. S., P. Cebe, and T. M. Swager (California Institute of Technology),
"Electron Spin Resonance and Optical Spectroscopic Studies of the Conducting Polymer Precursor: Poly(3,4-Diisopropylidene Cyclobutene),"
Journal of Polymer Science: Part B: Polymer Physics,
Vol. 27, No. 2, pp. 443–463, January 30, 1989.

Kliore, A. J., and L. F. Mullen,
"The Long-Term Behavior of the Main Peak of the Dayside Ionosphere of Venus During Solar Cycle 21 and Its Implications on the Effect of the Solar Cycle Upon the Electron Temperature in the Main Peak Region,"
Journal of Geophysical Research,
Vol. 94, No. A10, pp. 13,339–13,351, October 1, 1989.

Krisher, T. P.,
"Possible Test at Jupiter of the Nonsymmetric Gravitational Theory,"
Physical Review D,
Vol. 40, No. 4, pp. 1372–1373, August 15, 1989.

Kuiper, T. B. H., and G. D. Brin (Heritage Research, Los Angeles, California),
"Resource Letter ETC-1: Extraterrestrial Civilization,"
American Journal of Physics,
Vol. 57, No. 1, pp. 12–18, January 1989.

Kuiper, T. B. H., W. L. Peters III (Steward Observatory, University of Arizona), F. F. Gardner (Division of Radiophysics, CSIRO), J. B. Whiteoak (Division of Radiophysics, CSIRO), and J. E. Reynolds (Mount Stromlo and Siding Spring Observatories),
"Detection of the $2_0 \rightarrow 3_{-1}$ Transition of $^{13}CH_3OH$ at 14.8 GHz,"
The Astrophysical Journal,
Vol. 340, No. 1, Part 2, pp. L41–L44, May 1, 1989.

Kwack, E. Y., L. H. Back, and C. P. Bankston,
"Electrostatic Dispersion of Diesel Fuel Jets at High Back Pressure,"
Journal of Engineering for Gas Turbines and Power,
Vol. 111, No. 3, pp. 578–586, July 1989.

Kwok, R., and W. T. K. Johnson,
"Block Adaptive Quantization of Magellan SAR Data,"
IEEE Transactions on Geoscience and Remote Sensing,
Vol. 27, No. 4, pp. 375–383, July 1989.

Larsson, A., J. Cody, and R. J. Lang,
"Strained-Layer InGaAs/GaAs/AlGaAs Single Quantum Well Lasers With High Internal Quantum Efficiency,"
Applied Physics Letters,
Vol. 55, No. 22, pp. 2268–2270, November 27, 1989.

Lawton, T. B.,
"Improved Reading Performance Using Individualized Compensation Filters for Observers With Losses in Central Vision,"
Ophthalmology,
Vol. 96, No. 1, pp. 115–126, January 1989.

Lawton, T. B.,
"Outputs of Paired Gabor Filters Summed Across the Background Frame of Reference Predict the Direction of Movement,"
IEEE Transactions on Biomedical Engineering,
Vol. 36, No. 1, pp. 130–139, January 1989.

Leu, M.-T., S. Hatakeyama, and K.-J. Hsu,
"Rate Constants for Reactions Between Atmospheric Reservoir Species I. HCl,"
The Journal of Physical Chemistry,
Vol. 93, No. 15, pp. 5778–5784, June 27, 1989.

Levy, G. S., R. P. Linfield, C. D. Edwards, J. S. Ulvestad, J. F. Jordan, Jr., S. J. DiNardo, C. S. Christensen, R. A. Preston, L. J. Skjerve, L. R. Stavert, B. F. Burke (Massachusetts Institute of Technology), A. R. Whitney (Haystack Observatory), R. J. Cappallo (Haystack Observatory), A. E. E. Rogers (Haystack Observatory), K. B. Blaney (NASA Goddard Space Flight Center), M. J. Maher (Bendix Field Engineering Corp.), C. H. Ottenhoff (TRW Space and Technology Group), D. L. Jauncey (Commonwealth Scientific and Industrial Research Organization), W. L. Peters (Australian National University), J. Reynolds (Australian National University), T. Nishimura (Institute for Space and Astronautical Science), T. Hayashi (Institute for Space and Astronautical Science), T. Takano (Institute for Space and Astronautical Science), T. Yamada (Institute for Space and Astronautical Science), H. Hirabayashi (Nobeyama Radio Observatory), M. Morimoto (Nobeyama Radio Observatory), M. Inoue (Nobeyama Radio Observatory), T. Shiomi (Radio Research Laboratory), N. Kawaguchi (Radio Research Laboratory), H. Kunimori (Radio Research Laboratory), M. Tokumaru (Radio Research Laboratory), and F. Takahashi (Radio Research Laboratory),
"VLBI Using a Telescope in Earth Orbit. I. The Observations,"
The Astrophysical Journal,
Vol. 336, No. 2, Part 1, pp. 1098–1104, January 15, 1989.

Levy, G. S., R. P. Linfield, C. D. Edwards, S. J. DiNardo, J. S. Ulvestad, J. F. Jordan, L. Skjerve, L. R. Stavert, R. A. Preston, C. S. Christensen, N. A. Renzetti, B. F. Burke (Massachusetts Institute of Technology), J. W. Barrett (Massachusetts Institute of Technology), A. Whitney (Haystack Observatory, Massachusetts), R. J. Cappallo (Haystack Observatory, Massachusetts), A. E. E. Rogers (Haystack Observatory, Massachusetts), D. H. Roberts (Brandeis University, Massachusetts), D. L. Jauncey (CSIRO, Canberra, Australian Capital Territory, Australia), C. H. Ottenhoff (TRW Space and Technology Group, Las Cruces, New Mexico), K. B. Blaney (NASA Goddard Space Flight Center), W. L. Peters (Mount Stromlo Observatory, Canberra, Australian Capital Territory, Australia), J. Reynolds (Mount Stromlo Observatory, Canberra, Australian Capital Territory, Australia), T. Nishimura (Institute for Space and Astronautical Science, Tokyo, Japan), T. Takano (Institute for Space and Astronautical Science, Tokyo, Japan), T. Yamada (Institute for Space and Astronautical Science, Tokyo, Japan), T. Hayashi (Institute for Space and Astronautical Science, Tokyo, Japan), H. Hirabayshi (Nobeyama Radio Observatory, Japan), M. Morimoto (Nobeyama Radio Observatory, Japan), M. Inoue (Nobeyama Radio Observatory, Japan), T. Shiomi (Radio Research Laboratory, Kashima, Japan), H. Kunimori (Radio Research Laboratory, Kashima, Japan), N. Kawaguchi (Radio Research Laboratory, Kashima, Japan), J. Amagai (Radio Research Laboratory, Kashima, Japan), M. Balister (National Radio Astronomy Observatory, Virginia), and M. Pospieszalsi (National Radio Astronomy Observatory, Virginia),
"Orbiting Very Long Baseline Interferometry (OVLBI) Observations Using the Tracking and Data Relay Satellite System (TDRSS) at 2.3 and 15 GHz,"
Acta Astronautica,
Vol. 19, No. 6/7, pp. 597–602, 1989.

Li, F., W. Large (National Center for Atmospheric Research, Boulder, Colorado), W. Shaw (Naval Postgraduate School, Monterey, California), E. J. Walsh (NASA Goddard Space Flight Center), and K. Davidson (Naval Postgraduate School, Monterey, California),
"Ocean Radar Backscatter Relationship With Near-Surface Winds: A Case Study During FASINEX,"
Journal of Physical Oceanography,
Vol. 19, No. 3, pp. 342–353, March 1989.

Lin, T. L., R. W. Fathauer, and P. J. Grunthaner,
"Heavily Boron-Doped Si Layers Grown Below 700 °C by Molecular Beam Epitaxy Using an HBO_2 Source,"
Applied Physics Letters,
Vol. 55, No. 8, pp. 795–797, August 21, 1989.

Lind, K. R. (National Radio Astronomy Observatory, Charlottesville, Virginia), D. G. Payne, D. L. Meier, and R. D. Blandford (California Institute of Technology),
"Numerical Simulations of Magnetized Jets,"
The Astrophysical Journal,
Vol. 344, No. 1, Part 1, pp. 89–103, September 1, 1989.

Linfield, R. P., G. S. Levy, J. S. Ulvestad, C. D. Edwards, S. J. DiNardo, L. R. Stavert, C. H. Ottenhoff (TRW Space and Technology Group), A. R. Whitney (Haystack Observatory), R. J. Cappallo (Haystack Observatory), A. E. E. Rogers (Haystack Observatory), H. Hirabayashi (Nobeyama Radio Observatory), M. Morimoto (Nobeyama Radio Observatory), M. Inoue (Nobeyama Radio Observatory), D. L. Jauncey (Commonwealth Scientific and Industrial Research Organization), and T. Nishimura (Institute for Space and Astronautical Science),
"VLBI Using a Telescope in Earth Orbit. II. Brightness Temperatures Exceeding the Inverse Compton Limit,"
The Astrophysical Journal,
Vol. 336, No. 2, Part 1, pp. 1105–1112, January 15, 1989.

Ling, J. C., and W. A. Wheaton,
"Search for a Narrow Annihilation Feature Correlated With the MeV Emission of Cygnus X-1,"
The Astrophysical Journal,
Vol. 343, No. 2, Part 2, pp. L57–L59, August 15, 1989.

Liu, D. T. H., and L.-J. Cheng,
"Polarization Properties of Degenerate Four-Wave Mixing in GaAs,"
Journal of the Optical Society of America B,
Vol. 6, No. 8, pp. 1554–1558, August 1989.

Liu, D. T. H., L.-J. Cheng, A. E. Chiou (Rockwell International Science Center, Thousand Oaks, California), and P. Yeh (Rockwell International Science Center, Thousand Oaks, California),
"Two-Beam Coupling Gain in Undoped GaAs With Applied DC Electric Field and Moving Grating,"
Optics Communications,
Vol. 72, No. 6, pp. 384–386, August 15, 1989.

Liu, H.-K.,
"Optical Pattern Recognition and Associative Memory: An Introduction by the Feature Editor,"
Applied Optics,
Vol. 28, No. 2, pp. 217–218, January 15, 1989.

Liu, K. Y., and W. E. Arens,
"Spacecraft On-Board SAR Image Generation for Eos-Type Missions,"
IEEE Transactions on Geoscience and Remote Sensing,
Vol. 27, No. 2, pp. 184–192, March 1989.

Liu, W. T.,
"The Annual and Interannual Variabilities of Precipitable Water, Surface Wind Speed, and Sea Surface Temperature Over the Tropical Pacific,"
Ocean–Air Interactions,
Vol. 1, pp. 195–219, 1989.

Lo, M. W.,
"Alaska SAR Facility Mission Planning Software–An Interactive Mission Planning System,"
AIAA Computers in Aerospace VII Conference and Exhibit, Monterey, California, October 3–5, 1989,
Part 2, pp. 1095–1101, 1989.

Malla, R. P., and S.-C. Wu,
"GPS Inferred Geocentric Reference Frame for Satellite Positioning and Navigation,"
Bulletin Géodésique,
Vol. 63, No. 3, pp. 263–279, 1989.

Manhart, P. K.,
" 'Virtual Triple Schmidt': Wide Field Two-Stage Optics,"
Optical Design Methods, Applications, and Large Optics,
SPIE Vol. 1013, pp. 182–189, 1988.

Marder, S. R., J. W. Perry, and W. P. Schaefer (California Institute of Technology),
"Synthesis of Organic Salts With Large Second-Order Optical Nonlinearities,"
Science,
Vol. 245, No. 4918, pp. 626–628, August 11, 1989.

Margitan, J. J., G. A. Brothers (Chemal Inc., Wallops Island, Virginia), E. V. Browell (NASA Langley Research Center), D. Cariolle (Centre National de la Recherches Meteorologiques, Toulouse, France), M. T. Coffey (National Center for Atmospheric Research, Boulder, Colorado), J. C. Farman (British Antarctic Survey, Cambridge, England), C. B. Farmer, G. L. Gregory (NASA Langley Research Center), J. W. Harder (NOAA Aeronomy Laboratory, Boulder, Colorado), D. J. Hofmann (University of Wyoming), W. Hypes (NASA Langley Research Center), S. Ismail (ST Systems, Inc., Hampton, Virginia), R. O. Jakoubek (NOAA Aeronomy Laboratory, Boulder, Colorado), W. Komhyr (NOAA Air Resources Laboratory, Boulder, Colorado), S. Kooi (ST Systems, Inc., Hampton, Virginia), A. J. Krueger (NASA Goddard Space Flight Center), J. C. Larsen (NASA Langley Research Center), W. Mankin (NCAR, Boulder, Colorado), M. P. McCormick (NASA Langley Research Center), G. H. Mount (NOAA Aeronomy Laboratory, Boulder, Colorado), M. H. Proffitt (NOAA Aeronomy Laboratory, Boulder, Colorado), A. R. Ravishankara (NOAA Aeronomy Laboratory, Boulder, Colorado), A. L. Schmeltekopf (NOAA Aeronomy Laboratory, Boulder, Colorado), W. L. Starr (NASA Ames Research Center), G. C. Toon, A. Torres (NASA Goddard Space Flight Center), A. F. Tuck (NOAA Aeronomy Laboratory, Boulder, Colorado), A. Wahner (NOAA Aeronomy Laboratory, Boulder, Colorado), and I. Watterson (NOAA Aeronomy Laboratory, Boulder, Colorado),
"Intercomparison of Ozone Measurements Over Antarctica,"
Journal of Geophysical Research,
Vol. 94, No. D14, pp. 16,557–16,569, November 30, 1989.

Maserjian, J., P. O. Andersson, B. R. Hancock, J. M. Iannelli, S. T. Eng, F. J. Grunthaner, K.-K. Law (University of California, Santa Barbara), P. O. Holtz (University of California, Santa Barbara), R. J. Simes (University of California, Santa Barbara), L. A. Coldren (University of California, Santa Barbara), A. C. Gossard (University of California, Santa Barbara), and J. L. Merz (University of California, Santa Barbara),
"Optically Addressed Spatial Light Modulators by MBE-Grown *nipi* MQW Structures,"
Applied Optics,
Vol. 28, No. 22, pp. 4801–4807, November 15, 1989.

Matson, D. L., and R. H. Brown,
"Solid-State Greenhouses and Their Implications for Icy Satellites,"
Icarus,
Vol. 77, No. 1, pp. 67–81, January 1989.

May, R. D.,
"Computer Processing of Tunable Diode Laser Spectra,"
Applied Spectroscopy,
Vol. 43, No. 5, pp. 834–839, July 1989.

May, R. D., and C. R. Webster,
"In Situ Stratospheric Measurements of HNO_3 and HCl Near 30 km Using the Balloon-Borne Laser in Situ Sensor Tunable Diode Laser Spectrometer,"
Journal of Geophysical Research,
Vol. 94, No. D13, pp. 16,343–16,350, November 20, 1989.

McDermid, I. S., and S. M. Godin,
"Stratospheric Ozone Measurements Using a Ground-Based, High-Power Lidar,"
Laser Applications in Meteorology and Earth and Atmospheric Remote Sensing,
SPIE Vol. 1062, pp. 225–232, 1989.

McEwan, M. J., A. B. Denison, W. T. Huntress, Jr., V. G. Anicich, J. Snodgrass (University of California, Santa Barbara), and M. T. Bowers (University of California, Santa Barbara),
"Association Reactions at Low Pressure. 2. The CH_3^+/CH_3CN System,"
The Journal of Physical Chemistry,
Vol. 93, No. 10, pp. 4064–4068, May 18, 1989.

Meier, D. L., D. L. Jauncey (CSIRO, Epping, New South Wales, Australia), R. A. Preston, A. K. Tzioumis (University of Sydney, Australia), A. E. Wehrle, R. Batchelor (CSIRO, Epping, New South Wales, Australia), J. Gates (CSIRO, Epping, New South Wales, Australia), P. A. Hamilton (University of Tasmania, Australia), B. R. Harvey (University of New South Wales, Australia), R. F. Haynes (CSIRO, Epping, New South Wales, Australia), B. Johnson (Ford Aerospace and Communications Corp., Sunnyvale, California), P. McCulloch (University of Tasmania, Australia), G. Moorey (CSIRO, Epping, New South Wales, Australia), D. D. Morabito, G. D. Nicolson (CSIR, Johannesburg, South Africa), A. E. Niell, J. G. Robertson (University of Sydney, Australia), G. W. R. Royle (University of Tasmania, Australia), L. Skjerve, M. A. Slade, O. B. Slee (CSIRO, Epping, New South Wales, Australia), A. Watkinson (University of Sydney, Australia), and A. E. Wright (CSIRO, Epping, New South Wales, Australia),
"The High-Resolution Structure of the Centaurus A Nucleus at 2.3 and 8.4 GHz,"
The Astronomical Journal,
Vol. 98, No. 1, pp. 27–35, July 1989.

Meinel, A. B., and M. P. Meinel,
"Optical Testing of Off-Axis Parabolic Segments Without Auxiliary Optical Elements,"
Optical Engineering,
Vol. 28, No. 1, pp. 71–75, January 1989.

Menzies, R. T., G. M. Ancellet, D. M. Tratt, M. G. Wurtele (University of California, Los Angeles), J. C. Wright (University of California, Los Angeles), and W. Pi (University of California, Los Angeles),
"Altitude and Seasonal Characteristics of Aerosol Backscatter at Thermal Infrared Wavelengths Using Lidar Observations From Coastal California,"
Journal of Geophysical Research,
Vol. 94, No. D7, pp. 9897–9908, July 20, 1989.

Menzies, R. T., and R. M. Hardesty (National Oceanic Atmospheric Administration, Boulder, Colorado),
"Coherent Doppler Lidar for Measurements of Wind Fields,"
Proceedings of the IEEE,
Vol. 77, No. 3, pp. 449–462, March 1989.

Miskowski, V. M., and V. H. Houlding (Allied-Signal, Inc., New Jersey),
"Electronic Spectra and Photophysics of Platinum(II) Complexes With α-Diimine Ligands. Solid-State Effects. 1. Monomers and Ligand π Dimers,"
Inorganic Chemistry,
Vol. 28, No. 8, pp. 1529–1533, April 19, 1989.

Neilan, R. E., T. H. Dixon, T. K. Meehan, W. G. Melbourne, J. A. Scheid, J. N. Kellogg, and J. L. Stowell,
"Operational Aspects of CASA UNO '88—The First Large Scale International GPS Geodetic Network,"
IEEE Transactions on Instrumentation and Measurement,
Vol. 38, No. 2, pp. 648–651, April 1989.

Nelson, G. A., T. M. Marshall, and W. W. Schubert,
"The Nematode C. elegans. A Model Animal System for the Detection of Genetic and Developmental Lesions,"
Presented at the 19th Intersociety Conference on Environmental Systems,
San Diego, California, July 24–26, 1989,
Paper No. 891488 (SAE Technical Paper Series), 1989.

Nelson, G. A., W. W. Schubert, T. M. Marshall, E. R. Benton (University of San Francisco, California), and E. V. Benton (University of San Francisco, California),
"Radiation Effects in *Caenorhabditis Elegans,* Mutagenesis by High and Low LET Ionizing Radiation,"
Mutation Research,
Vol. 212, No. 2, pp. 181–192, 1989.

Neugebauer, M.,
"Ion Spectrometers for Studying the Interaction of the Solar Wind With Non-Magnetic Bodies,"
Solar System Plasma Physics,
pp. 389–397, Washington, D.C.: American Geophysical Union, 1989.

Neugebauer, M.,
"The Structure of Rotational Discontinuities,"
Geophysical Research Letters,
Vol. 16, No. 11, pp. 1261–1264, November 1989.

Neugebauer, M., B. E. Goldstein, H. Balsiger (University of Bern, Switzerland), F. M. Neubauer (University of Cologne, Federal Republic of Germany), R. Schwenn (Max-Planck-Institut für Aeronomie, Katlenburg-Lindau, Federal Republic of Germany), and E. G. Shelley (Lockheed Palo Alto Research Laboratory, California),
"The Density of Cometary Protons Upstream of Comet Halley's Bow Shock,"
Journal of Geophysical Research,
Vol. 94, No. A2, pp. 1261–1269, February 1, 1989.

Neugebauer, M., A. J. Lazarus (Massachusetts Institute of Technology), H. Balsiger (University of Bern, Switzerland), S. A. Fuselier (Lockheed Palo Alto Research Laboratory, California), F. M. Neubauer (Universität zu Köln, Federal Republic of Germany), and H. Rosenbauer (Max-Planck-Institut für Aeronomie, Federal Republic of Germany),
"The Velocity Distributions of Cometary Protons Picked Up by the Solar Wind,"
Journal of Geophysical Research,
Vol. 94, No. A5, pp. 5227–5239, May 1, 1989.

Neugebauer, M., and P. R. Weissman,
"CRAF Mission,"
Eos,
Vol. 70, No. 23, pp. 633 and 646, June 6, 1989.

Newburn, Jr., R. L., and H. Spinrad (University of California, Berkeley),
"Spectrophotometry of 25 Comets: Post-Halley Updates for 17 Comets Plus New Observations for Eight Additional Comets,"
The Astronomical Journal,
Vol. 97, No. 2, pp. 552–569, February 1989.

Nichols, D. K., L. S. Smith, G. A. Soli, R. Koga (The Aerospace Corp., El Segundo, California), and W. A. Kolasinski (The Aerospace Corp., El Segundo, California),
"Latest Trends in Parts SEP Susceptibility From Heavy Ions,"
IEEE Transactions on Nuclear Science,
Vol. 36, No. 6, pp. 2388–2397, December 1989.

Nouhi, A., R. J. Stirn, P. V. Meyers (Ametek Applied Materials Laboratory, Harleysville, Pennsylvania), and C. H. Liu (Ametek Applied Materials Laboratory, Harleysville, Pennsylvania),
"High-Efficiency CdTe Thin-Film Solar Cells Using Metalorganic Chemical Vapor Deposition Techniques,"
Journal of Vacuum Science and Technology A,
Vol. 7, No. 3, pp. 833–836, May/June 1989.

Orient, O. J., A. Chutjian, R. W. Crompton (Australian National University, Australia), and B. Cheung (Australian National University, Australia),
"Comparison of Experimental and Calculated Attachment Rate Constants for $CFCl_3$ and CCl_4 in the Temperature Range 294–500 K,"
Physical Review A,
Vol. 39, No. 9, pp. 4494–4501, May 1, 1989.

Ostro, S. J., R. F. Jurgens, D. K. Yeomans, E. M. Standish, and W. Greiner,
"Radar Detection of Phobos,"
Science,
Vol. 243, No. 4898, pp. 1584–1586, March 24, 1989.

Ostro, S. J., D. K. Yeomans, P. W. Chodas, R. M. Goldstein, R. F. Jurgens, and T. W. Thompson,
"Radar Observations of Asteroid 1986 JK,"
Icarus,
Vol. 78, No. 2, pp. 382–394, April 1989.

Parker, T. J., R. S. Saunders, and D. M. Schneeberger,
"Transitional Morphology in West Deuteronilus Mensae, Mars: Implications for Modification of the Lowland/Upland Boundary,"
Icarus,
Vol. 82, No. 1, pp. 111–145, November 1989.

Perigaud, C., P. Delecluse (LODYC, Universite Pierre et Marie Curie, Paris, France), and J. F. Minster (CNES/GRGS, Centre Spatial de Toulouse, France),
"Wind Stress Over the Arabian Sea From Ship Reports and Seasat Scatterometer Data,"
Monthly Weather Review,
Vol. 117, No. 11, pp. 2348–2364, November 1989.

Perry, J. W., A. E. Stiegman, S. R. Marder, D. R. Coulter, D. N. Beratan, D. E. Brinza, F. L. Klavetter (California Institute of Technology), and R. H. Grubbs (California Institute of Technology),
"Second and Third Order Nonlinear Optical Properties of Conjugated Molecules and Polymers,"
Nonlinear Optical Properties of Organic Materials,
SPIE Vol. 971, pp. 17–24, 1988.

Prestage, J. D., G. J. Dick, and L. Maleki,
"New Ion Trap for Frequency Standard Applications,"
Journal of Applied Physics,
Vol. 66, No. 3, pp. 1013–1017, August 1, 1989.

Preston, R. A., D. L. Jauncey (CSIRO, Epping, New South Wales, Australia), D. L. Meier, A. K. Tzioumis (University of Sydney, Australia), J. Ables (CSIRO, Epping, New South Wales, Australia), R. Batchelor (CSIRO, Epping, New South Wales, Australia), J. Faulkner (University of Southern California), J. Gates (CSIRO, Epping, New South Wales, Australia), B. Greene (Division of National Mapping, Belconnen, Australian Capital Territory, Australia), P. A. Hamilton (University of Tasmania, Australia), B. R. Harvey (University of New South Wales, Australia), R. F. Haynes (CSIRO, Epping, New South Wales, Australia), B. Johnson (Ford Aerospace and Communications Corp., Sunnyvale, California), K. Lambeck (Australian National University, Australia), A. P. Louie, P. McCulloch (University of Tasmania, Australia), G. Moorey (CSIRO, Epping, New South Wales, Australia), D. D. Morabito, G. D. Nicolson (CSIR, Johannesburg, South Africa), A. E. Niell, J. G. Robertson (University of Sydney, Australia), G. R. Royle (University of Tasmania, Australia), L. Skjerve, M. A. Slade, O. B. Slee (CSIRO, Epping, New South Wales, Australia), A. Stolz (University of New South Wales, Australia), A. Watkinson (University of Sydney, Australia), A. E. Wehrle, and A. E. Wright (CSIRO, Epping, New South Wales, Australia),
"The Southern Hemisphere VLBI Experiment,"
The Astronomical Journal,
Vol. 98, No. 1, pp. 1–26, July 1989.

Putterman, S. (University of California, Los Angeles), J. Rudnick (University of California, Los Angeles), and M. Barmatz,
"Acoustic Levitation and the Boltzmann–Ehrenfest Principle,"
The Journal of the Acoustical Society of America,
Vol. 85, No. 1, pp. 68–71, January 1989.

Radhakrishnan, G., A. Nouhi, and J. Liu,
"Growth and Characterization of CdTe on GaAs/Si Substrates,"
Micro-Optoelectronic Materials,
SPIE Vol. 877, pp. 25–27, 1988.

Ramesham, R., T. Daud, A. Moopenn, A. P. Thakoor, and S. K. Khanna,
"Manganese Oxide Microswitch for Electronic Memory Based on Neural Networks,"
Journal of Vacuum Science and Technology B,
Vol. 7, No. 3, pp. 450–454, May/June 1989.

Rascoe, D. L., A. L. Riley, J. Huang, V. Lubecke, and L. Duffy,
"*Ka*-Band MMIC Beam-Steered Transmitter Array,"
IEEE Transactions on Microwave Theory and Techniques,
Vol. 37, No. 12, pp. 2165–2168, December 1989.

Ratnakumar, B. V., C. L. Ni, S. Di Stefano, G. Nagasubramanian, and C. P. Bankston,
"Electrochemical Studies on Niobium Triselenide Cathode Material for Lithium Rechargeable Cells,"
Journal of the Electrochemical Society,
Vol. 136, No. 1, pp. 6–12, January 1989.

Rea, D. G.,
"Multinational Mars Exploration,"
Aerospace America,
No. 2, pp. 18–21, February 1989.

Rea, D. G., M. K. Craig (NASA Johnson Space Center), G. E. Cunningham, and H. L. Conway (NASA Headquarters),
"An International Mars Exploration Program,"
Presented at the 40th Congress of the International Astronautical Federation, Málaga, Spain,
October 7–12, 1989,
Paper No. 89-493, pp. 1–6, 1989.

Richardson, W. H., L. Maleki, and E. Garmire (University of Southern California),
"The Influence of Velocity-Changing Collisions on Resonant Degenerate Four-Wave Mixing,"
IEEE Journal of Quantum Electronics,
Vol. 25, No. 3, pp. 382–394, March 1989.

Riley, A. L., D. Rascoe, V. Lubecke, J. Huang, and L. Duffy,
"K_a-Band MMIC Beam Steered Transmitter Array,"
IEEE 1989 Microwave and Millimeter-Wave Monolithic Circuits Symposium,
pp. 65–68, 1988.

Rodríguez, E.,
"Beyond the Kirchhoff Approximation,"
Radio Science,
Vol. 24, No. 5, pp. 681–693, September–October 1989.

Rodríguez, E., and B. Chapman,
"Extracting Ocean Surface Information From Altimeter Returns: The Deconvolution Method,"
Journal of Geophysical Research,
Vol. 94, No. C7, pp. 9761–9778, July 15, 1989.

Sander, S. P., and R. R. Friedl,
"Kinetics and Product Studies of the Reaction ClO + BrO Using Flash Photolysis–Ultraviolet Absorption,"
The Journal of Physical Chemistry,
Vol. 93, No. 12, pp. 4764–4771, June 15, 1989.

Sander, S. P., R. R. Friedl, and Y. L. Yung (California Institute of Technology),
"Rate of Formation of the ClO Dimer in the Polar Stratosphere: Implications for Ozone Loss,"
Science,
Vol. 245, pp. 1095–1098, September 8, 1989.

Sauer, Jr., C. G.,
"MIDAS: Mission Design and Analysis Software for the Optimization of Ballistic Interplanetary Trajectories,"
The Journal of the Astronautical Sciences,
Vol. 37, No. 3, pp. 251–259, July–September 1989.

Schenk, P. M.,
"Crater Formation and Modification on the Icy Satellites of Uranus and Saturn: Depth/Diameter and Central Peak Occurrence,"
Journal of Geophysical Research,
Vol. 94, No. B4, pp. 3813–3832, April 10, 1989.

Sekanina, Z.,
"Nuclei of Two Earth-Grazing Comets of Fan-Shaped Appearance,"
The Astronomical Journal,
Vol. 98, No. 6, pp. 2322–2345 and 2377–2382,
December 1989.

Selzer, R. H., P. L. Lee, J. Y. Lai, H. J. Frieden, and D. H. Blankenhorn (University of Southern California),
"Computer-Generated 3D Ultrasound Images of the Carotid Artery,"
Proceedings of Computers in Cardiology, Washington, D.C., September 25–28, 1988,
pp. 21–26, 1989.

Selzer, R. H., M. Siebes, C. Hagerty (University of Southern California), S. P. Azen (University of Southern California), P. L. Lee, D. H. Blankenhorn (University of Southern California), and A. Shircore (University of Southern California),
"Effects of Cardiac Phase on Diameter Measurements From Coronary Cineangiograms,"
Proceedings of Computers in Cardiology, Washington, D.C., September 25–28, 1988,
pp. 363–366, 1989.

Seraji, H.,
"Configuration Control of Redundant Manipulators: Theory and Implementation,"
IEEE Transactions on Robotics and Automation,
Vol. 5, No. 4, pp. 472–490, August 1989.

Seraji, H.,
"Decentralized Adaptive Control of Manipulators: Theory, Simulation and Experimentation,"
IEEE Transactions on Robotics and Automation,
Vol. 5, No. 2, pp. 183–201, April 1989.

Shakkottai, P., E. Y. Kwack, and L. H. Back,
"Analog Circuit for the Measurement of Phase Difference Between Two Noisy Sine–Wave Signals,"
Review of Scientific Instruments,
Vol. 60, No. 9, pp. 3081–3083, September 1989.

Shing, Y. H.,
"Electron Cyclotron Resonance Deposition and Plasma Diagnostics of a-Si:H and a-C:H Films,"
Solar Cells,
Vol. 27, Nos. 1–4, pp. 331–340, October–December 1989.

Simon, M. K., and D. Divsalar,
"Doppler-Corrected Differential Detection of MPSK,"
IEEE Transactions on Communications,
Vol. 37, No. 2, pp. 99–109, February 1989.

Skinner, D. L.,
"QUICK: An Interactive Software Environment for Engineering Design,"
AIAA Computers in Aerospace VII Conference and Exhibit, Monterey, California, October 3–5, 1989,
Part 1, pp. 542–563, 1989.

Slade, M. A., and C. F. Yoder,
"1960 Chile: New Estimate of Polar Motion Excitation,"
Geophysical Research Letters,
Vol. 16, No. 10, pp. 1193–1196, October 1989.

Smith, E. J.,
"Interplanetary Magnetic Field Over Two Solar Cycles and Out to 20 AU,"
Advances in Space Research,
Vol. 9, No. 4, pp. (4)159–(4)169, 1989.

Smith, W. H. (Washington University), W. V. Schempp (Washington University), and K. H. Baines,
"The D/H Ratio for Jupiter,"
The Astrophysical Journal,
Vol. 336, No. 2, pp. 967–970, January 15, 1989.

Smith, W. H. (Washington University), W. V. Schempp (Washington University), and K. H. Baines,
"Limits on the Diurnal Variation of H_2 Quadrupole Features in Neptune,"
The Astrophysical Journal,
Vol. 343, No. 1, pp. 450–455, August 1, 1989.

Spanos, J. T.,
"Control-Structure Interaction in Precision Pointing Servo Loops,"
Journal of Guidance, Control, and Dynamics,
Vol. 12, No. 2, pp. 256–263, March–April 1989.

Staehle, R. L.,
"Earth Orbital Preparations for Mars Expeditions,"
The Case for Mars III: Strategies for Exploration—General Interest and Overview,
pp. 373–396, San Diego, California: Univelt, Inc., 1989.

Staller, C., R. W. Capps, D. Butler (R. G. Hansen and Associates, Santa Barbara, California), N. Moss (R. G. Hansen and Associates, Santa Barbara, California), and W. Norwood (R. G. Hansen and Associates, Santa Barbara, California),
"Test Chamber for Low-Background IR Focal Plane Testing,"
Test and Evaluation of Infrared Detectors and Arrays,
SPIE Vol. 1108, pp. 16–22, 1989.

Stephenson, R. R.,
"The NASA Telerobotics Research Program,"
Automatic Control in Aerospace: Selected Papers From the IFAC Symposium, Tsukuba, Japan, 17–21 July 1989,
pp. 17–25, Oxford, England: Pergamon Press, 1990.

Sweetser, T. H.,
"Some Notes on Applying the One-Step Multiconic Method of Trajectory Propagation,"
The Journal of the Astronautical Sciences,
Vol. 37, No. 3, pp. 233–250, July–September 1989.

Tang, F. (California Institute of Technology), B. T. Tsurutani, W. D. Gonzalez (Instituto de Pesquisas Espaciais, Sao Jose dos Campos, Brazil), S. I. Akasofu (University of Alaska, Fairbanks), and E. J. Smith,
"Solar Sources of Interplanetary Southward B_z Events Responsible for Major Magnetic Storms (1978–1979),"
Journal of Geophysical Research,
Vol. 94, No. A4, pp. 3535–3541, April 1, 1989.

Tausworthe, R. C.,
"Bounds on Effectiveness of Software Reuse,"
AIAA Computers in Aerospace VII Conference and Exhibit, Monterey, California, October 3–5, 1989,
Part 1, pp. 361–367, 1989.

Tedesco, E. F., J. G. Williams, D. L. Matson, G. J. Veeder, J. C. Gradie (University of Hawaii, Honolulu), and L. A. Lebofsky (University of Arizona),
"A Three-Parameter Asteroid Taxonomy,"
The Astronomical Journal,
Vol. 97, No. 2, pp. 580–606, February 1989.

Toon, G. C., C. B. Farmer, L. L. Lowes, P. W. Schaper, J.-F. Blavier, and R. H. Norton,
"Infrared Aircraft Measurements of Stratospheric Composition Over Antarctica During September 1987,"
Journal of Geophysical Research,
Vol. 94, No. D14, pp. 16,571–16,596, November 30, 1989.

Toon, G. C., C. B. Farmer, P. W. Schaper, J.-F. Blavier, and L. L. Lowes,
"Ground-Based Infrared Measurements of Tropospheric Source Gases Over Antarctica During the 1986 Austral Spring,"
Journal of Geophysical Research,
Vol. 94, No. D9, pp. 11,613–11,624, August 30, 1989.

Tratt, D. M., and R. T. Menzies,
"Unstable Resonator Considerations for Spaceborne Coherent Lidar Applications,"
Coherent Laser Radar: Technology and Applications,
SPIE Vol. 1181, pp. 106–112, 1989.

Tsurutani, B. T.,
"Foreword,"
Journal of Geophysical Research,
Vol. 94, No. A1, p. 1, January 1, 1989.

Tsurutani, B. T.,
"The Voyager 2 Neptune Encounter,"
Eos,
Vol. 70, No. 43, pp. 915–921, October 24, 1989.

Tsurutani, B. T., A. L. Brinca, B. Buti, E. J. Smith, R. M. Thorne (University of California, Los Angeles), and H. Matsumoto (Kyoto University, Japan),
"Magnetic Pulses With Durations Near the Local Proton Cyclotron Period: Comet Giacobini-Zinner,"
Journal of Geophysical Research,
Vol. 94, No. A1, pp. 29–35, January 1, 1989.

Tsurutani, B. T., A. L. Brinca, E. J. Smith, R. T. Okida, R. R. Anderson (University of Iowa), and T. E. Eastman (University of Maryland, College Park),
"A Statistical Study of ELF–VLF Plasma Waves at the Magnetopause,"
Journal of Geophysical Research,
Vol. 94, No. A2, pp. 1270–1280, February 1, 1989.

Tsurutani, B. T., D. E. Page, E. J. Smith, B. E. Goldstein, A. L. Brinca, R. M. Thorne (University of California, Los Angeles), H. Matsumoto (Kyoto University, Japan), I. G. Richardson (Imperial College of Science and Technology, London), and T. R. Sanderson (European Space Agency, Noordwijk, The Netherlands),
"Low-Frequency Plasma Waves and Ion Pitch Angle Scattering at Large Distances ($> 3.5 \times 10^5$ km) From Giacobini-Zinner: Interplanetary Magnetic Field α Dependences,"
Journal of Geophysical Research,
Vol. 94, No. A1, pp. 18–28, January 1, 1989.

Tsurutani, B. T., E. J. Smith, A. L. Brinca, R. M. Thorne (University of California, Los Angeles), and H. Matsumoto (Kyoto University, Japan),
"Properties of Whistler Mode Wave Packets at the Leading Edge of Steepened Magnetosonic Waves: Comet Giacobini-Zinner,"
Planetary Space Science,
Vol. 37, No. 2, pp. 167–182, 1989.

Tzioumis, A. K. (University of Sydney, Australia), D. L. Jauncey (CSIRO, Epping, New South Wales, Australia), R. A. Preston, D. L. Meier, G. D. Nicolson (CSIR, Johannesburg, South Africa), R. Batchelor (CSIRO, Epping, New South Wales, Australia), J. Gates (CSIRO, Epping, New South Wales, Australia), P. A. Hamilton (University of Tasmania, Australia), B. R. Harvey (University of New South Wales, Australia), R. F. Haynes (CSIRO, Epping, New South Wales, Australia), B. Johnson (Ford Aerospace and Communications Corp., Sunnyvale, California), P. McCulloch (University of Tasmania, Australia), G. Moorey (CSIRO, Epping, New South Wales, Australia), D. D. Morabito, A. E. Niell, J. G. Robertson (University of Sydney, Australia), G. W. R. Royle (University of Tasmania, Australia), L. Skjerve, M. A. Slade, O. B. Slee (CSIRO, Epping, New South Wales, Australia), A. Watkinson (University of Sydney, Australia), A. E. Wehrle, and A. E. Wright (CSIRO, Epping, New South Wales, Australia),
"VLBI Observations at 2.3 GHz of the Compact Galaxy 1934-638,"
The Astronomical Journal,
Vol. 98, No. 1, pp. 36–43, July 1989.

Ulvestad, J. S., and A. S. Wilson (University of Maryland),
"Radio Structures of Seyfert Galaxies. VII. Extension of a Distance-Limited Sample,"
The Astrophysical Journal,
Vol. 343, No. 2, pp. 659–671, August 15, 1989.

Underwood, M. L., R. K. Sievers, D. O'Connor, R. M. Williams, B. Jeffries-Nakamura, and C. P. Bankston,
"AMTEC Recirculating Test Cell Component Testing and Operation,"
Proceedings of the 24th Intersociety Energy Conversion Engineering Conference, Washington, D.C., August 6–11, 1989,
Vol. 6, pp. 2833–2839, 1989.

Utku, S. (Duke University, North Carolina), M. Salama, and R. J. Melosh (Duke University, North Carolina),
"A Family of Permutations for Concurrent Factorization of Block Tridiagonal Matrices,"
IEEE Transactions on Computers,
Vol. 38, No. 6, pp. 812–824, June 1989.

Vandersande, J. W., A. Zoltan, and C. Wood,
"Accurate Determination of Specific Heat at High Temperatures Using the Flash Diffusivity Method,"
International Journal of Thermophysics,
Vol. 10, No. 1, pp. 251–257, January 1989.

Van Zyl, J. J.,
"Unsupervised Classification of Scattering Behavior Using Radar Polarimetry Data,"
IEEE Transactions on Geoscience and Remote Sensing,
Vol. 27, No. 1, pp. 36–45, January 1989.

Vasquez, R. P., M. C. Foote, and B. D. Hunt,
"Nonaqueous Chemical Depth Profiling of $YBa_2Cu_3O_{7-x}$,"
Applied Physics Letters,
Vol. 54, No. 11, pp. 1060–1062, March 13, 1989.

Vasquez, R. P., M. C. Foote, and B. D. Hunt,
"Reaction of Nonaqueous Halogen Solutions With $YBa_2Cu_3O_{7-x}$,"
Journal of Applied Physics,
Vol. 66, No. 10, pp. 4866–4877, November 15, 1989.

Vasquez, R. P., M. C. Foote, and B. D. Hunt,
"Wet Chemical Techniques for Passivation of $YBa_2Cu_3O_{7-x}$,"
Applied Physics Letters,
Vol. 55, No. 17, pp. 1801–1803, October 23, 1989.

Vasquez, R. P., B. D. Hunt, and M. C. Foote,
"Reduced Reactivity to Air on HF-Treated $YBa_2Cu_3O_{7-x}$ Surfaces,"
Applied Physics Letters,
Vol. 54, No. 23, pp. 2373–2375, June 5, 1989.

Veeder, G. J., M. S. Hanner, D. L. Matson, E. F. Tedesco, L. A. Lebofsky (University of Arizona), and A. T. Tokunaga (University of Hawaii, Honolulu),
"Radiometry of Near-Earth Asteroids,"
The Astronomical Journal,
Vol. 97, No. 4, pp. 1211–1219, April 1989.

Venkateshan, S. P., P. Shakkottai, E. Y. Kwack, and L. H. Back,
"Acoustic Temperature Profile Measurement Technique for Large Combustion Chambers,"
Journal of Heat Transfer,
Vol. 111, No. 2, pp. 461–466, May 1989.

Vilnrotter, V. A., S. Hinedi, and R. Kumar,
"Frequency Estimation Techniques for High Dynamic Trajectories,"
IEEE Transactions on Aerospace and Electronic Systems,
Vol. 25, No. 4, pp. 559–577, July 1989.

Waltman, S. B., and W. J. Kaiser,
"An Electron Tunneling Sensor,"
Sensors and Actuators,
Vol. 19, No. 3, pp. 201–210, September 1, 1989.

Wan, Z. (Academia Sinica, Beijing, China), and J. Dozier,
"Land-Surface Temperature Measurement From Space: Physical Principles and Inverse Modeling,"
IEEE Transactions on Geoscience and Remote Sensing,
Vol. 27, No. 3, pp. 268–278, May 1989.

Wang, C. C.,
"An Algorithm to Design Finite Field Multipliers Using a Self-Dual Normal Basis,"
IEEE Transactions on Computers,
Vol. 38, No. 10, pp. 1457–1460, October 1989.

Ward, W. R.,
"Corotation Torques in the Solar Nebula: The Cutoff Function,"
The Astrophysical Journal,
Vol. 336, No. 1, pp. 526–538, January 1, 1989.

Ward, W. R.,
"On the Rapid Formation of Giant Planet Cores,"
The Astrophysical Journal,
Vol. 345, No. 2, pp. L99–L102, October 15, 1989.

Ward, W. R., and K. Hourigan (CSIRO, Highett, Victoria, Australia),
"Orbital Migration of Protoplanets: The Inertial Limit,"
The Astrophysical Journal,
Vol. 347, No. 1, Part 1, pp. 490–495, December 1, 1989.

Waters, J. W.,
"Microwave Limb-Sounding of Earth's Upper Atmosphere,"
Atmospheric Research,
Vol. 23, pp. 391–410, 1989.

Webster, C. R.,
"Stratospheric Composition Measurements of Earth and Titan Using High-Resolution Tunable Diode Laser Spectroscopy,"
Journal of Quantitative Spectroscopy and Radiative Transfer,
Vol. 40, No. 3, pp. 239–248, September 1988.

Weissman, P. R., A. R. Dobrovolskis (NASA Ames Research Center), and S. A. Stern (University of Colorado, Boulder),
"Constraints on Impact Rates in the Pluto–Charon System and the Population of the Kuiper Comet Belt,"
Geophysical Research Letters,
Vol. 16, No. 11, pp. 1241–1244, November 1989.

West, R. A., G. S. Orton, B. T. Draine (Princeton University, New Jersey), and E. A. Hubbell (California Institute of Technology),
"Infrared Absorption Features for Tetrahedral Ammonia Ice Crystals,"
Icarus,
Vol. 80, No. 1, pp. 220–223, July 1989.

Williams, R. M., B. Jeffries-Nakamura, M. L. Underwood, B. L. Wheeler, M. E. Loveland, S. J. Kikkert, J. L. Lamb, T. Cole, J. T. Kummer, and C. P. Bankston,
"High Power Density Performance of WPt and WRh Electrodes in the Alkali Metal Thermoelectric Converter,"
Journal of the Electrochemical Society,
Vol. 136, No. 3, pp. 893–894, March 1989.

Williams, R. M., S. Surampudi, and C. P. Bankston,
"The Crystalline Phases Present in Carbon Cathodes of Discharged Li/$SOCl_2$-$LiAlCl_4$ Cells,"
Journal of the Electrochemical Society,
Vol. 136, No. 5, pp. 1287–1289, May 1989.

Woo, R., W. L. Sjogren, J. G. Luhmann (University of California, Los Angeles), A. J. Kliore, and L. H. Brace (NASA Goddard Space Flight Center),
"Solar Wind Interaction With the Ionosphere of Venus Inferred From Radio Scintillation Measurements,"
Journal of Geophysical Research,
Vol. 94, No. A2, pp. 1473–1478, February 1, 1989.

Yeates, C. M.,
"Initial Findings From a Telescopic Search for Small Comets Near Earth,"
Planetary and Space Science,
Vol. 37, No. 10, pp. 1185–1196, October 1989.

Yen, C.-w. L.,
"Ballistic Comet Exploration Mission Options,"
The Journal of the Astronautical Sciences,
Vol. 37, No. 3, pp. 363–397, July–September 1989.

Yen, C.-w. L.,
"Ballistic Mercury Orbiter Mission Via Venus and Mercury Gravity Assists,"
The Journal of the Astronautical Sciences,
Vol. 37, No. 3, pp. 417–432, July–September 1989.

Yen, C.-w. L.,
"Main-Belt Asteroid Exploration: Mission Options for the 1990s,"
The Journal of the Astronautical Sciences,
Vol. 37, No. 3, pp. 333–361, July–September 1989.

Yen, C.-w. L.,
"Mission Opportunity Maps for Rendezvous With Earth-Crossing Asteroids,"
The Journal of the Astronautical Sciences,
Vol. 37, No. 3, pp. 399–415, July–September 1989.

Yen, C.-w. L., D. H. Collins, and S. A. Meyer (Science Applications International Corp., Schaumburg, Illinois),
"A Mercury Orbiter Mission Design,"
Orbital Mechanics and Mission Design,
pp. 553–574, San Diego, California: Univelt, Inc., 1989.

Yoder, C. F., S. P. Synnott, and H. Salo,
"Orbits and Masses of Saturn's Co-Orbiting Satellites, Janus and Epimetheus,"
The Astronomical Journal,
Vol. 98, No. 5, pp. 1875–1889 and 1948–1949, November 1989.

Zak, M.,
"Analysis of Turbulence in Shear Flows Using the Stabilization Principle,"
Mathematical and Computer Modelling,
Vol. 12, No. 8, pp. 985–990, 1989.

Zak, M.,
"The Least Constraint Principle for Learning in Neurodynamics,"
Physics Letters A,
Vol. 135, No. 1, pp. 25–28, February 6, 1989.

Zak, M.,
"Non-Lipschitzian Dynamics for Neural Net Modelling,"
Applied Mathematics Letters,
Vol. 2, No. 1, pp. 69–74, 1989.

Zak, M.,
"Terminal Attractors in Neural Networks,"
Neural Networks,
Vol. 2, No. 4, pp. 259–274, 1989.

Zak, M.,
"Unsupervised Learning in Neurodynamics Using Example-Interaction Approach,"
Applied Mathematics Letters,
Vol. 2, No. 3, pp. 281–286, 1989.

Zetner, P. W., S. Trajmar, G. Csanak (Los Alamos National Laboratory, New Mexico), and R. E. H. Clark (Los Alamos National Laboratory, New Mexico),
"Problems Associated With the Measurement of Coherence Parameters: Superelastic Electron Scattering By Laser-Excited $^{138}Ba(...6s\ 6p\ ^1P_1)$ Atoms,"
Physical Review A,
Vol. 39, No. 11, pp. 6022–6025, June 1, 1989.

Zlotnicki, V., L.-L. Fu, and W. Patzert,
"Seasonal Variability in Global Sea Level Observed With Geosat Altimetry,"
Journal of Geophysical Research,
Vol. 94, No. C12, pp. 17,959–17,969 and 18,235–18,237, December 15, 1989.

Zlotnicki, V., and J. G. Marsh (NASA Goddard Space Flight Center),
"Altimetry, Ship Gravimetry, and the General Circulation of the North Atlantic,"
Geophysical Research Letters,
Vol. 16, No. 9, pp. 1011–1014, September 1989.

Zohar, S.,
"The Role of the ± 1 Number System in Multibit Hardware Correlators,"
IEEE Transactions on Acoustics, Speech, and Signal Processing,
Vol. 37, No. 10, pp. 1581–1589, October 1989.

Zohar, S.,
"A VLSI Implementation of a Correlator/Digital-Filter Based on Distributed Arithmetic,"
IEEE Transactions on Acoustics, Speech, and Signal Processing,
Vol. 37, No. 1, pp. 156–160, January 1989.

Zurek, R. W., and D. J. McClease,
"The Role of Climate Studies in the Future Exploration of Mars,"
The Case for Mars III: Strategies for Exploration—General Interest and Overview,
pp. 277–285, San Diego, California: Univelt, Inc., 1989.